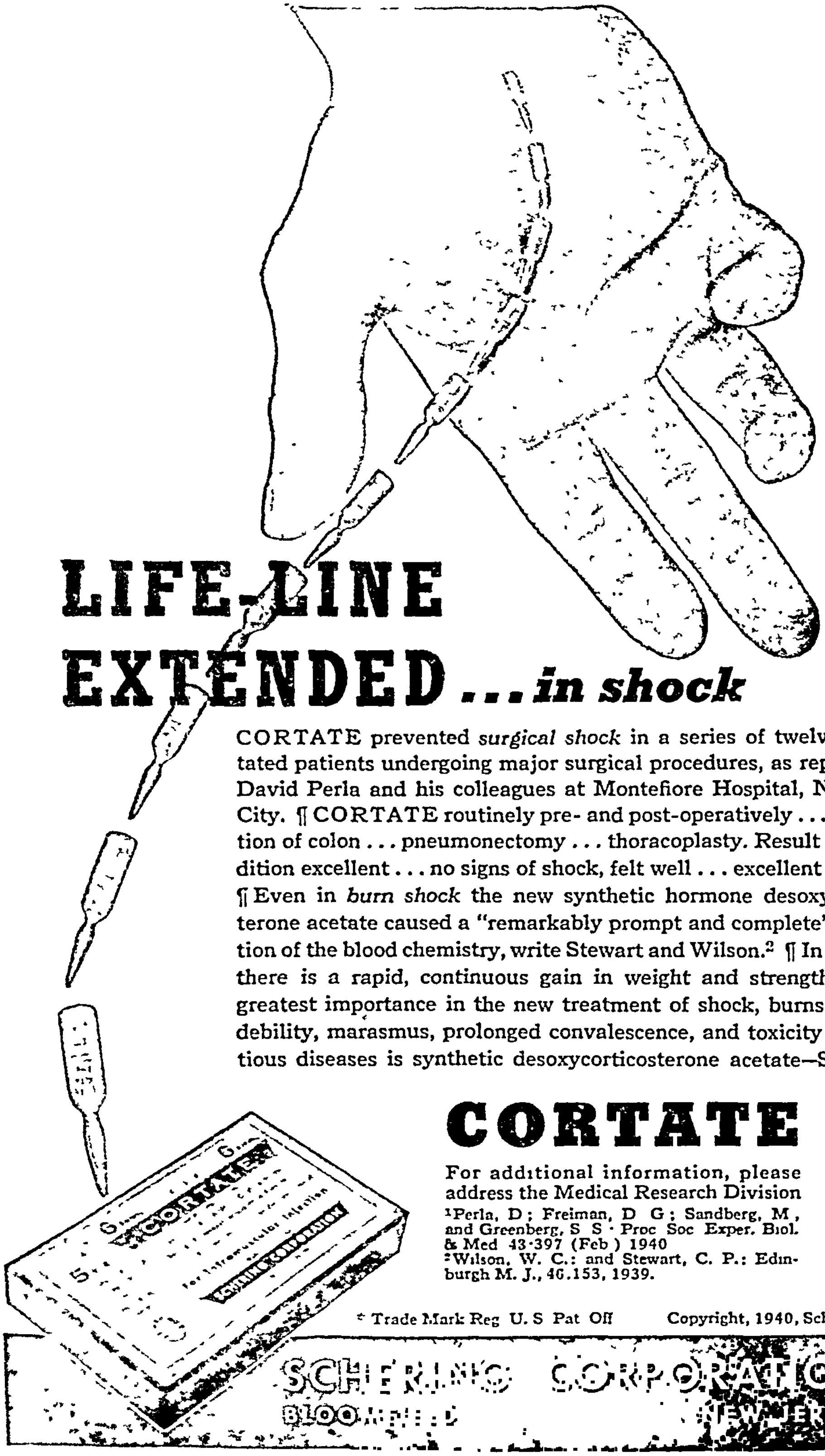

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[1] Perla, D; Freiman, D G; Sandberg, M, and Greenberg, S S · Proc Soc Exper. Biol. & Med 43·397 (Feb) 1940

[2] Wilson, W. C.: and Stewart, C. P.: Edinburgh M. J., 46.153, 1939.

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APRIL, 1940

ANNUAL PRIZE ESSAY ON ANESTHESIA II

EDITORIALS

Surgery is Medicine 97 2
Dr. Eugene Foldes

PRESIDENT-ELECT OF THE U. S. CHAPTER OF THE INTERNATIONAL COLLEGE OF SURGEONS 98

ORIGINAL ARTICLES

Reconstruction of the Ureter
Dr. Rudolf Nissen 99 35

A New Method for Intra-Articular Arthodesis of the Knee
Prof. A. M. Dogliotti 103 25

General Considerations and Criteria in the Surgery of the Thyroid Gland
Dr. Desiderio Román 107 25

Methods Preferred in Cleft-Lip and Cleft-Palate Repair
Dr. Warren B. Davis 116 5

Effect of Transplants from the Renal Pelvis on the Healing Defects of Bone
Dr. Egidio Tosatti 126 10

Extrapleural Pneumothorax
Dr. Moses Behrend 133 15

The Management of Acute Pancreatic Necrosis
Dr. Lewis F. Smead 138 5

Heterogenous Bone Grafts
Dr. Miguel Lopez Esnaurrizar 151 25

Importance of Air Way in Anesthesia
Dr V. O Cardenas 157 10

ANNUAL PRIZE ESSAY ON ANESTHESIA

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COMMITTEE OF AWARDS

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Essays must reach the International Secretary, Dr. Max Thorek, 850 W. Irving Park Blvd., Chicago, Ill., not later than May 1, 1941. They must be typewritten in English in manuscript form, double space, and must not exceed 5,000 words in length. The original must be accompanied by four carbon copies.

Treatment of the Complications of Penetrating Gunshot and Stab Wounds of the Thorax
Dr. Carl R. Steinke 162

Late Manifestations of Syphilis and Gonorrhea Often Mistaken for Prostatic Hypertrophy
Dr. A. L. Wolbarst 168

Wound Disruption and Postoperative Hernia
Dr. John A. Green 173

OBITUARIES 132

MEETINGS AND CONGRESSES

Address of President Frederick M. Douglass at Convocation of Fifth Annual Assembly, U. S. Chapter, International College of Surgeons 181

The Venice Assembly (Impressions: From the Notebook of the Editor) 182

Admitted to Fellowship—U. S. Chapter 185

Admitted to Membership—U. S. Chapter 185

Admitted to Associate Membership—U. S. Chapter 185

Advancements—U. S. Chapter 185

Admitted to Fellowship—International College 185

History of the College and Guild Functions: Radio Address by Dr. Charles Arnold 186

GUILD ACTIVITIES

Spring Meeting of New England Guild 188

Indiana Study Guild 188

New England States Guild 189

COLLEGE PERSONALITIES

Professor Theodore Papayoannou, Vice-President, International College of Surgeons 190

BOOK REVIEWS

The Art of Anesthesia
Dr. Paluel J. Flagg 191

Atlas of Surgical Operations
Dr. Elliott C. Cutler 191

La legature dell'arteria splenica
Dr. Gulio Bombi 192

The Practice of Urology
Dr. Leon Herman 192

Technik der Knochenbruchbehandlung
Dr. Böhler 192

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Ownership: The Journal of the International College of Surgeons is a nonprofit publication owned and published by the United States Chapter.

Material: Scientific articles and communications on matters of surgical and related interests are invited. These must be submitted to the Editorial Board, which reserves the right to reject any material deemed unsatisfactory. All manuscripts are subject to editorial modification.

Scientific Papers: The publication of scientific papers in the Journal is not limited to the Members and Fellows of the College. Any surgeon may submit original contributions, which will be considered by the Editorial Board for acceptance. Thus, while the Journal is the official organ of the International College of Surgeons, it is also an open forum for the expression of contemporary surgical advancement, thought and research. There is no discrimination as to those who may submit original papers; it is the scientific value of the contribution that determines its acceptability for publication.

Article I, Section V, of the Constitution of the College reads:

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All manuscripts must be typed double-spaced, on one side of standard manuscript sheets; the left margin should be 1½ inches in width to permit proper editing. Manuscripts should bear the address of the author. No manuscript will be accepted for publication without consideration by the Editor-in-Chief and the approval of the Editorial Board.

One carbon copy should accompany the original paper. A summary must be given at the end of the article.

Contributions in a foreign language should be sent to Prof. Rudolf Nissen, Divanyolu, 105, Ortaköy, Istanbul, Turkey.

Anonymous contributions of any and all sorts will not be published

Illustrations: These should be numbered and the legend written on the back, with the title of the article; the top of the picture should be indicated. Legends should be typewritten at the end of the manuscript. Glossy paper produces the best halftones. Charts drawn for reproduction should be made in black India ink.

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For information about membership in the International College of Surgeons and other matters pertaining thereto, address **Dr. Charles H. Arnold, 908 Terminal Building, Lincoln, Nebraska.**

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◆

News Items: The Journal will be pleased to publish personal news and all items of interest. Items dealing with appointments to hospitals and medical schools, activities of meetings, etc., if considered by the editors to be of sufficient interest, will be included in the columns of the Journal. Such items may be sent to the Editorial Office, 850 West Irving Park Boulevard, Chicago, Illinois.

Editorials

SURGERY IS MEDICINE

WAR is diplomacy by other means, according to Clausewitz, German military philosopher. Adapting this thought to the medical sciences, someone might suggest that surgery is internal medicine by other means. He could illustrate his suggestion by the following facts:

Internal medicine, among other measures, employs drugs to accomplish certain aims. In gastric hyperacidity associated with peptic ulcer, atropine frequently is administered in an attempt to reduce the amount of hydrochloric acid production. Similarly the reduction of hydrochloric acid production is the aim (it is a "medical" aim, and only the mode of precedure is different) when subtotal gastric resection is performed for the relief of peptic ulcer. Can it not be claimed that if the knife is, and can be, substituted for a drug—if surgery is resorted to instead of medical therapy—the purpose nevertheless remains identical, and "medicine" is being practiced, even though different means are employed? Or, if gastroenterostomy is performed for the purpose of permitting neutralization of the acid gastric contents by the regurgitation of alkaline intestinal juice, is not this surgical operation equivalent to the administration of alkalies, an obvious "medical" procedure? Similar examples of instances in which surgery is substituted for medical procedure can be cited, such as kidney decapsulation in acute nephritis for the purpose of improving the diuresis, or thyroidectomy for bringing about a better coronary circulation. In all these, surgery is "medicine" applied by other means.

The foregoing examples form a part of the so-called borderline between medicine and surgery. There is yet another part of the area where medicine and surgery meet. This is where medicine comes to the aid of surgery in the pursuit of a surgical aim rather than where surgery joins medicine in the pursuit of a medical aim. This applies to those dietetic and medicinal measures used pre- and post-operatively to produce favorable operative circumstances and rapid and uncomplicated wound healing. The prevention of preoperative fear (particularly important in thyroid surgery) and of respiratory and circulatory disturbances associated with surgical intervention belongs in this category. The importance of dietetics in the acceleration of wound healing is being increasingly understood and appreciated.

From one point of view, almost all surgery borders on medicine. Traumatic surgery, which seems to be farthest removed from medicine, is, in a sense, the "purest" form of surgery. But even trauma may be based occasionally on disorders of the nervous and endocrine systems. The recognition of the presence of these factors can be of the utmost value to the traumatic

PRESIDENT-ELECT OF THE U. S. CHAPTER OF THE INTERNATIONAL COLLEGE OF SURGEONS

DR. Desiderio Roman, A.M., M.D., was elected with acclaim to the presidency of the United States Chapter at the fifth annual assembly held in Venice, Florida, February 11-14.

great democracy, he was named by the coalition (bi-partisan) commission for President of Nicaragua, his native land, at the suggestion of his nephew, Gen. Anastasio Samoza, now president of that country.

DESIDERIO ROMAN, A.M., M.D., F.A.C.S., F.I.C.S., President-Elect of the United States Chapter of the International College of Surgeons.

Dr. Roman is a distinguished surgeon, an [illegible] much beloved by his confrères and possesses [illegible] ingratiating personality which attracts [illegible] and admirers. While a loyal [illegible] steeped in the ideals of our

His enthusiasm for the ideals of the International College of Surgeons has been noteworthy since the inception of the organization. He is a Fellow of the American Medical Association and

(Please turn to page 106)

RECONSTRUCTION OF THE URETER

DR. RUDOLF NISSEN

ISTANBUL, TURKEY AND NEW YORK, NEW YORK

IN 1932 I performed on a male patient an operation, to be described below, for replacement of a last segment of the left ureter by a disconnected loop of the small bowel. By reason of existing circumstances, it was impossible to check the postoperative progress of this case at regular intervals. His communication, written about six and one-half years following the operation, states that he is in good health, and that while stones have formed on the side operated upon, these passed painlessly.

Our suggestion that he submit to pyelography at the hands of a well trained urologist was not followed. Since the outbreak of the present war we have had no means of communicating with the patient.

The original operation in this case consisted of performing a plastic procedure on the ureter and resorting to a plastic substitution for a portion of the ureter which had been destroyed.

There is a paucity of information in the literature as to how to deal with these cases, and therefore the operation to be described may prove of interest. The numerous indications for substitution of a ureter will not be entered into here, but suffice it to say that in most instances operative intervention is called for in cases of secondary operations where attempts at anastomosing the pelvis of the kidney and ureter, implantating the ureter into the bladder, or other procedures on the ureter have failed.

It is, of course, of importance to ascertain under such circumstances the condition of both kidneys should there be any tendency to nephritis on both sides. If such be the case, it becomes evident at once that conservative treatment of both kidneys is of utmost importance.

CASE REPORT

History of Illness. The patient upon whom the operation was performed suffered from bilateral ureteral calculi. Both ureters showed hydronephrosis of moderate degree. A stone blocked the left ureter and a stone was impacted at the junction of the lower and middle thirds. A number of attempts at ureteral catheterization were unsuccessful. Following the last catheterization a large paraureteral abscess developed. The surgeon who opened the abscess found a stone in the abscess cavity.

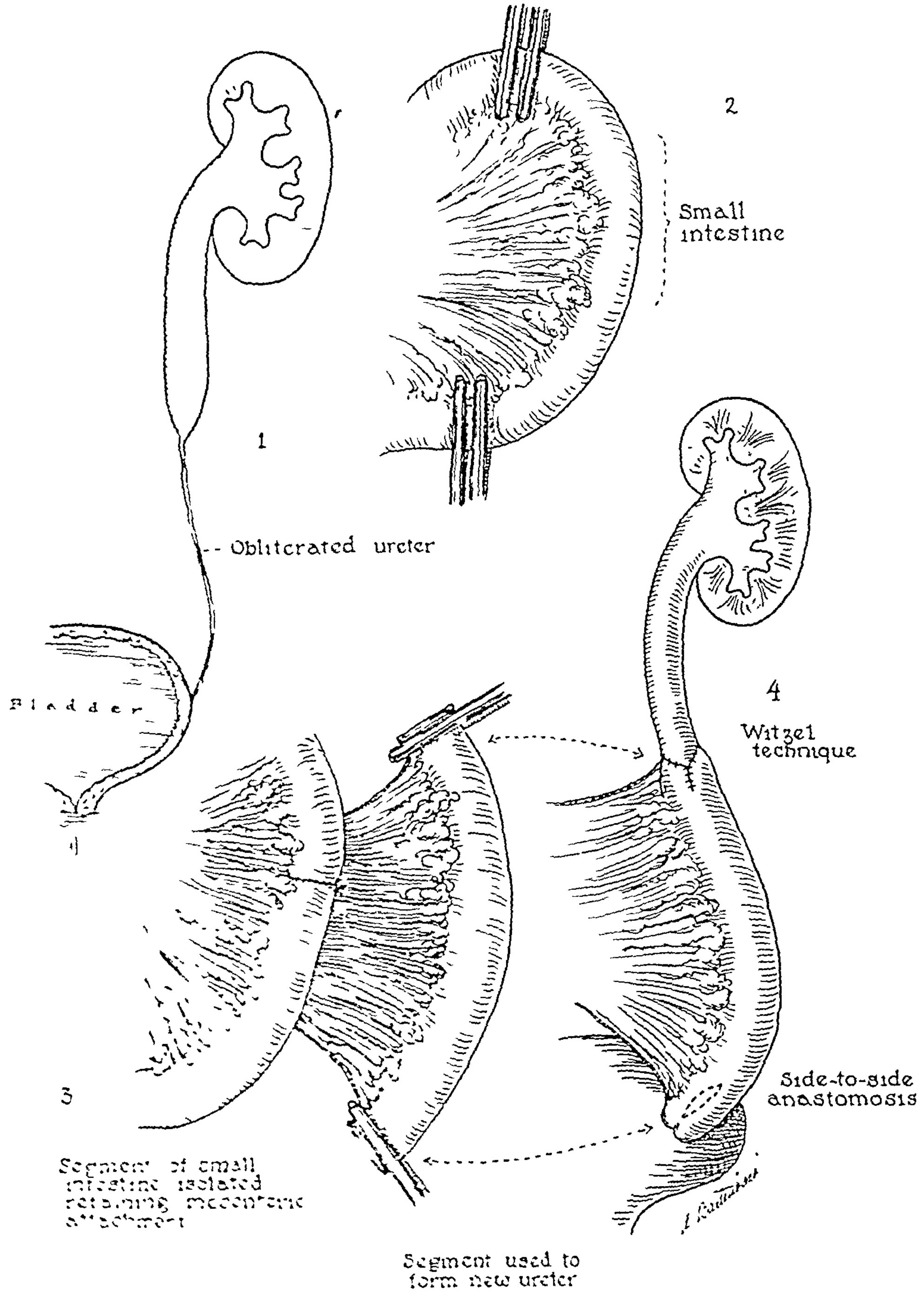
Following healing, a fistula resulted, from which urine discharged from the left kidney. An attempt to insert a ureteral catheter and another attempt to re-establish continuity of the ureter were unsuccessful.

It was in this stage that the patient came under our observation. We attempted at this time to expose the ureter proximal and distal to the fistula and to insert an indwelling catheter under ocular and digital guidance. We failed in this attempt. We found that the peripheral portion of the ureter was imbedded in a mass of firm scar tissue. The fistula itself was represented by a narrow tract. The central part of the ureter was markedly enlarged and its wall much thickened.

Because the patient wished at any cost to rid himself of the permanent fistula and because he refused to submit to a nephropyelostomy, and since a nephrectomy was contraindicated, the following procedure was resorted to:

Technic of Operation. After the central part of the ureter was freed for a distance of about 6 cm., the operative wound was closed provisionally and the patient was prepared for laparotomy. An infraumbilical incision of the abdominal wall was made. A freely movable loop of the small intestine on the left side was picked up, emptied of its contents, as much as possible, by digital manipulation and divided at two places about 15 to 20 cm. apart An end-to-end anastomosis was performed. The disconnected loop of bowel was irrigated several times with rivanol solution and closed at both ends by inverting purse-string sutures

An anastomosis was then performed between the lower portion of the disconnected bowel segment and the upper portion of the bladder covered with serous membrane, the anastomotic opening permitting the easy insertion of the


2
Small intestine
1
Obliterated ureter
Bladder
4
Witzel technique
3
Side-to-side anastomosis
Segment of small intestine isolated retaining mesenteric attachment
Segment used to form new ureter

tip of the finger. The sigmoid flexure was then displaced laterally at about the level of the promontory of the sacrum. The posterior peritoneum was incised, and by careful blunt dissection of the tissues, a sufficiently wide channel was tunneled through to the original ureteral cavity in the region of the ureteral stump. The disconnected loop of intestine was placed retroperitoneally for a distance of about 10 cm. The peritoneum was sutured about the displaced segment of bowel and its mesentery in the best possible manner. The abdominal wall was then closed.

The original operative wound was then reopened. The central ureteral stump was then implanted into the displaced intestinal segment in the same fashion as one would place the rubber catheter in performing a Witzel gastrostomy. The operative area was drained, the abdominal wound closed, and an indwelling catheter inserted into the bladder.

Result. Healing progressed satisfactorily. No serious infection from the bladder or pelvis of the kidney was noted, at least during the stay of the patient at our clinic, for several weeks. He was discharged from under our care with normal temperature and in good general condition.

POSSIBLE COMPLICATIONS

Despite the fact that six and one-half years have elapsed following this operation with satisfactory results, nevertheless one must remember that there are possibilities of some complications which may still ensue. The following of these may be mentioned:

First, stagnation of urine in the transplanted intestinal segment, which is greater in diameter than a markedly dilated ureter and possesses the drawback of lack of propulsion of the urine, such as is observed in the ureter following hypertrophy of its musculature.

Second, infection of the pelvis of the kidney or the bladder from the usual flora of microorganisms inhabiting the intestine; these are not much influenced by irrigation with antiseptic solutions.

Third, the possibility of urine damming back from the bladder into the transplanted segment of intestine, with the creation of a sort of pseudo-bladder.

Fourth, the danger of chemical damage to the very sensitive mucous membrane of the transplanted segment of small intestine subjected to the constant flow of urine or the presence of stagnated urine.

The possible development of the first three conditions enumerated should be searched for by subjecting the patient to scrutinizing investigations by means of pyelographic examinations. This was advised, but, as stated, the patient paid no heed to this counsel. That no severe infection has taken place is attested by the fact that the general condition of the patient is good. The wide anastomotic opening and the caliber of the new passage represented by the segment of transplanted bowel created the advantage that in case of recurrent stone formation, the passage of such calculi would be much facilitated. As a matter of fact, the patient reported symptom complexes indicating the passage of calculi, during which he experienced no attacks of colic.

INDICATIONS FOR OPERATION

Since an adequate study of this patient was not possible during the last few years, the method here described may be resorted to with certain reservations. In the opinion of the author, it is justified to recommend this operation for the reason that the problem of substituting greater segments of the ureter has not as yet been satisfactorily solved.

The author was unable to find any similar operation described in the literature.

SUMMARY

A case is reported in which the author substituted a segment of small intestine for a portion of a ureter destroyed by suppuration, through which a catheter could not be passed. A permanent ureteral fistula developed following the impaction of ureteral calculi and paraureteral abscess formation. The patient was discharged in good condition following the operation. Six and one-half years later he wrote that he was well, and that while he had passed stones during this period, he had had no colic.

RÉSUMÉ

La reconstruction de l'urétère

L'auteur substituta un segment d'intestin grêle pour une portion de l'urétère détruite par suppuration et qui était im-

perméable à aucune sonde. Une fistule urétérale permanente consecutive à l'enclavement de calculs urétéraux et d'abcès péri-urétéral survint. Six semaines après l'opération le malade quitte l'hôspital. Six ans et demi après il est en bonne santé. Il a passé quelques calculs durant cette période mais n'a eu aucune colique.

ZUSAMMENFASSUNG

Rekonstruktion des Ureters

Der Autor beschreibt einen Fall, in dem er einen, durch Eiterung zerstörten Ureter, durch den kein Katheder passieren konnte, mit Hilfe eines Dünndarmsegments ersetzt hatte. Eine permanente Ureteralfistel entwickelte sich infolge von Einklemmung von Ureteralsteinen und ein Periureteralabscess bildete sich. Der Patient wurde in gutem Allgemeinzustand entlassen und berichtete sechs Jahre später, dass es ihm gut ginge und dass er keine Steinkolik mehr gehabt hätte trotzdem er mehrere Steine ausgeschieden hatte.

SUMARIO

Reconstruccion del ureter

Un caso es reportado en el cual el autor substituye un segmento del intestino delgado por una porción de un ureter destruido por supuración, á travez del cual un cateter no podia pasar. Una fístula ureteral permanente se desarroyo despues del impacto de un calculo ureteral con la formación de un absceso paraureteral. El paciente fue dado de alta en buenas condiciones despues de la operación. Seis años y medio mas tarde él escribio diciendo que estaba bien, él no tuvo mas cólicos.

RIASSUNTO

Ricostruzione dell'uretere

Si riporta un caso nel quale l'autore ha sostituito un segmento dell'intestino tenue per una porzione di un uretere distrutto da suppurazione, attraverso il quale non si poteva passare un catetere. Una fistola ureterale permanente si sviluppò dopo l'ammassamento di calcoli ureterali, e la formazione di un ascesso paraureterale. L'ammalato fu rimandato a casa in buone condizioni dopo l'operazione. Sei anni e mezzo dopo egli scrisse che stava bene, e che sebbene avesse eliminato molti calcoli durante questo periodo, non aveva avuto nessun attacco colico.

NEW OFFICERS OF U. S. CHAPTER, INTERNATIONAL COLLEGE OF SURGEONS, ELECTED

Dr. Desiderio Roman, of Philadelphia, was elected president of the United States Chapter of the International College of Surgeons at the business session of the Scientific Assembly of the Chapter held in Venice, Fla., February 11-14. He will succeed **Dr. Frederick M. Douglass**, of Toledo.

Dr. P. Brooke Bland, of Philadelphia, was reelected first vice-president; **Dr. Duncan McPherson**, of New York, was chosen second vice-president, to succeed **Dr. Lionel P. Player**, of San Francisco; **Dr. Moses Behrend**, of Philadelphia, was reelected third vice-president; and **Dr. Raymond McNealy**, of Chicago, and **Dr. R. H. Dillehunt**, of Portland, Ore., were chosen fourth and fifth vice-presidents, respectively. **Dr. Benjamin I. Golden**, of Elkins, W. Va., succeeds himself as treasurer.

A NEW METHOD FOR INTRA-ARTICULAR ARTHRODESIS OF THE KNEE

PROF. A. M. DOGLIOTTI
Director of the Surgical Clinic of the Royal University
CATANIA, ITALY

THE method of arthrodesis of the knee which I have employed in certain cases tends to produce more constant and more rapid results than are obtained with other methods of surgery. The procedure is a very simple and yet a very efficient one.

It is unnecessary to discuss the various indications for arthrodesis. I shall only say that, although the extra-articular method has in many cases supplanted the intra-articular method, nevertheless it is necessary in certain cases to use the latter. Among these are certain forms of spastic contracture in flexion (i.e., Little's disease), the dangling paralytic knee and some rare cases of articular tuberculosis, in which conservative treatment is contraindicated because of the type of lesion, the age of the patient and other considerations. I shall limit myself to the technical problem of intra-articular arthrodesis.

DISADVANTAGES OF OTHER METHODS

Surgeons have employed many methods for securing fixation of the knee, the procedures consisting in the use of different types of resection and above all, in the use of free bone grafts and pedunculated bone grafts. Among the latter procedures, the methods preferred by most surgeons are those in which the patella is used (Hibbs, Vulpius, Albee, Schepelman). But at times the patella is insufficiently developed, or it is affected by a morbid process, and it therefore offers very little bone material, or it may be of insufficient length to use as a bridge support, and lastly, it is capable of a limited amount of osteogenetic activity.

Other methods that utilize bone grafts (those of Putti, Kajon, Bade, Rochet, etc.), with good results, nevertheless require at times complicated technical maneuvers and always present the added disadvantage that a very poorly vascularized bone graft is used. It is well known that a free bone graft, even though it is excellent material for a prosthesis, often becomes involved in processes of resorption and substitution and that fracture of the graft or resorption of it may occur before the reparative processes have assured solid immobilization of the limb. This happens when the vitality of the articular extremities is affected by general causes (syphilis, alteration of the metabolism, etc.), or by local causes (tuberculosis of the articular extremities, postoperative sepsis, trauma, etc.), by the excessive potency and persistency of the deforming forces (strong spastic contracture in flexion), or by marked disturbance of the trophism of the extremity (i.e., as a result of poliomyelitis). Consequently the method which will assure the success of the operation is one which permits the use of a healthy, pedunculated bone graft, well vascularized, of the exact dimensions required and sufficiently large to enable one to construct a solid bridge between the two articular extremities. Such a graft is easily obtainable, without complicated procedures, by using one of the articular extremities. These qualities are, in my opinion, embodied in the method which I shall now describe.

TECHNIC OF OPERATION

Arthrotomy is performed with the common anterior U-flap. The flap, which also contains the patella is raised and the lateral ligaments are severed, a strong flexion of the leg being necessary in order to expose completely the articulation. The two meniscuses are removed and then the proximal end of the tibia is sectioned transversely with a saw and an osteocartilaginous disc not more than 1 cm. in thickness is detached (fig. 1), in correspondence with the medial crest of insertion of the crucial ligaments. This disc remains connected to the femur by means of the crucial ligaments. The disc conserves good vascularization because of the vessels which pass along the crucial ligaments; this is demonstrated by the fact that the graft, when sectioned, bleeds. After the lateral parts of the disc are removed with osteotomic scissors, a healthy central graft remains (figs. 1, 2 and 3), connected to the crucial ligaments, and having the same length as the anteroposterior axis of the tibia. This bone graft, vascularized by the vessels of the crucial ligaments, is used for the fixation.

With the graft in readiness, the femoral condyles must now be levelled by a very superficial resection. Then with a scalpel a furrow having the exact proportions of the graft is cut on the anterior face of the articular extremities of the tibia and femur. The graft is then turned so that its long axis is parallel to the leg and so that its superior extremity is wedged into the femoral extremity. Thus the tibial and femoral extremities are brought closely together, the ligaments and skin are sutured and a cast is applied which insures complete immobilization for two months.

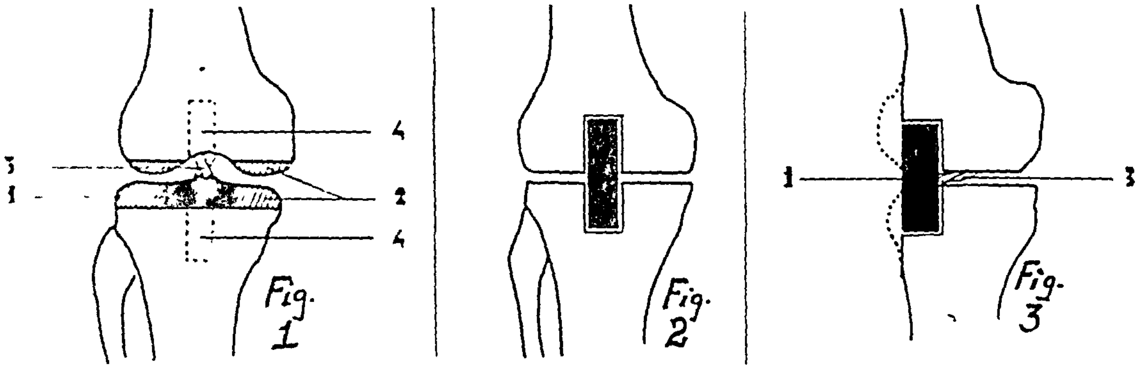


Fig. 1 *1*, Graft of tibial epiphysis (in black) which is to be used as the bone graft. This graft is vascularized by the crucial ligaments *(3)*. *2*, Parts of tibial and femoral epiphysis to be used (indicated by diagonal lines). *3*, Crucial ligaments, which are to be conserved. *4*, Site of incision which is to be carved on the anterior face of the femur and of the tibia, which is to receive the bone graft (indicated by dots).

Fig. 2 Bone graft (indicated in black) in place. Anterior view.

Fig. 3. Bone graft (indicated in black) in place. Lateral view. *1*, Bone graft. *2*, Crucial ligaments.

RESULTS

Recovery has always been fairly rapid in patients operated upon by me, and the solidness of the knee has been perfect. Roentgenograms show healthy consolidation of the bone with active participation of the graft in the process (figs. 4, 5, 6 and 7). The graft does not participate in the process of resorption and substitution usually noticed in free grafts but, because of its abundant vascularization, it takes part in the formation of callus, which renders the arthrodesis extremely sturdy.

INDICATIONS FOR USE

This method can be used when intra-articular arthrodesis in general is indicated and principally in cases of dangling paralytic knee and in severe forms of intractable spastic contractures of various origin. Regarding tuberculosis of the knee, I am convinced that my method can be used in some cases, because the tuberculous process in the first stage usually involves the femoral or tibial condyles (weight bearing parts of the articulation), while the intermedial part of the tibial epiphysis remains for a long time free from involvement in the process This, as has been noted, is because it is the part with the most adequate blood supply, which is provided by the vessels of the crucial ligaments, and it is less affected by the weight of the body due to the fact that it constitutes the wide intercondylar fossa of the femur. In these cases, after resection of the femoral and tibial condyles, the medial part of the tibial epiphysis can be conserved according to the technic described. If the vessels of the crucial ligaments are pervious, the pedunculated graft will bleed; thus good vascularization will be insured for the graft itself. The graft used will strengthen the arthrodesis after the resection. Moreover, we can depend on the beneficial effect of grafts in general in tuberculous processes.

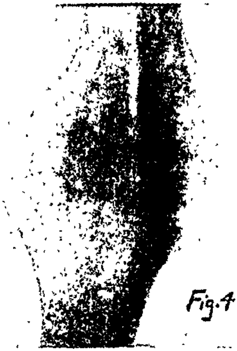
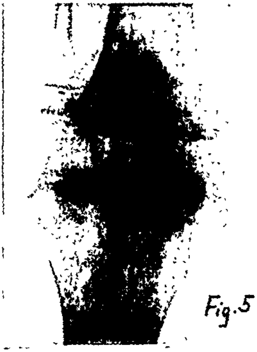


Fig.4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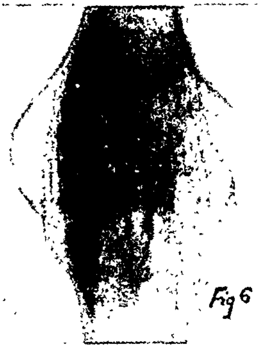
Fig 6

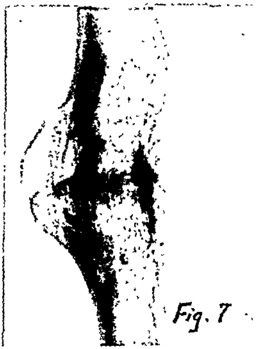
Fig. 7

Fig. 4. Case 1, roentgenogram, 45 days after operation
Fig. 5. Case 2 roentgenogram, 12 months after operation
Figs. 6 and 7 Case 3 12 months after operation.

SUM

The technic is desc arthrodesis of the k pedunculated bone the proximal end of the tibia. Recovery has been rapid and the solidness of the knee has been perfect in the author's cases.

RÉSUMÉ

Un nouvelle méthode d'arthrodèse intra-articulaire du genou

Ce procédé accompli l'arthrodèse du genou au moyen de l'ablation d'une greffe osseuse pedonculée. Cette greffe est enlevée de l'extremité proximale du tibia. La guérison dans les cas rapportées par l'auteur fut rapide et la solidité du genou est parfaite.

ZUSAMMENFASSUNG

Eine neue Methode für Intraarticuläre Arthrodese des Knies

Eine Technik wird beschrieben mit deren Hilfe eine Arthrodese des Knies mittels eines gestielten Knochentransplantats vom proximalen Ende der Tibia ausgeführt wird. Der Autor hatte eine sehr kurze Morbidität in seinen Fällen und die Festigkeit des Knies war sehr gut.

SUMARIO

Un metodo nuevo para artrodesis intra-articular de la rodilla

La técnica es descrita para afectar la artrodesis de la rodilla por medio de un injerto pedunculado de hueso de el extremo próximal de la tibia. Cura ha sido rápida en los casos del autor y la solidez de la rodilla ha sido perfecta.

RIASSUNTO

Un nuovo metodo per l'artrodesi intra-articolare del ginocchio

Si descrive la tecnica per effettuare l'artrodesi del ginocchio con un innesto osseo a peduncolo rimosso dalla estremità prossimale della tibia. Nei casi dell'autore la guarigione è stata rapida e la solidità del ginocchio è stata perfetta.

PRESIDENT-ELECT DESIDERIO ROMÁN

(**Dr. Román:** *Continued from page 98*)

a charter Fellow and a member of the Board of Governors of the American College of Surgeons; founder member of the American Board of Surgery; president of the Panamerican Medical Association (Philadelphia Chapter); surgeon-in-chief and head of the surgical department, first vice-president of the board of Trustees and a member of the staff executive committee, St. Luke's and Children's Hospital, Philadelphia; consulting surgeon to the Wilmington Hospital Association, Wilmington, Delaware, and United States delegate to the Panamerican Sanitary Congress in Washington, D. C., 1907. During the World War he rendered excellent service. He was chairman of the alumni association for volunteer service in the U. S. Medical Corps, and lecturer on the principles of surgery and surgical pathology, neuro-surgery and orthopedics [illegible] of the respective incumbents.

He is at present professor of clinical surgery in the Hahnemann Medical College and Hospital of Philadelphia; member of the National Council of Examiners of the International College of Surgeons; member of the Philadelphia County Medical Society and of its advisory committee; member of the Pennsylvania Medical Society; past president of the Oxford Medical Club and of the Homeopathic Medical Society of the County of Philadelphia (two terms); also guest lecturer on the history of medicine in the Medical Department of the Hahnemann Medical College and Hospital. He is a member of a number of fraternal organizations and of the college fraternity, Pi Upsilon Rho.

His leadership in surgery, his keen interest in the welfare of mankind, his mature experience in evaluating problems, both professional and civic, render him a worthy successor to the chair now ably occupied by Dr. Frederick M. Douglass.

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GENERAL CONSIDERATIONS AND CRITERIA IN THE SURGERY OF THE THYROID GLAND*

DESIDERIO ROMAN, A.M., M.D., F.A.C.S., F.I.C.S.
Clinical Professor of Surgery, Hahnemann Medical College and Hospital,
Chief Surgeon, St. Luke's and Children's Hospital
PHILADELPHIA

IN retrospect of my subject, one can trace the comprehensive, but meaningless, term *goiter* to remote antiquity and find recorded evidence of obscure knowledge and faulty concepts. On the other hand, one finds that the treatment of tumefactions and lesions about the anterior and lateral aspects of the neck was clearly described in the Hippocratic era and in the writings of Aristotle, Celsus and Galen. Nevertheless, from our present knowledge of the function of the thyroid gland, it is obvious that from the beginning of time this organ has played an important rôle among the disturbances afflicting mankind.

EARLY DESCRIPTIONS

While in the pre-Christian era there appears no account or description of goiter as a disease or clinical entity, some references in the Hippocratic writings indicate that goiter was confused with scrofula and other enlargements about the neck. It is strange that Aristotle, who described the trachea and the surrounding structures, did not mention the thyroid gland, and yet it is of interest to observe that the use of iodine in the form of sea water and sea weeds—the Spongia Marina Tosta—for the treatment of tumors and swellings about the neck was quite in vogue among the Greeks in antiquity.

In the first century, a period of intellectual activity in the Latin medical culture of the Golden Age of Rome, the learned Celsus first described bronchocele as a "tumor between the skin and larnyx, which may be fleshy or may co tain a sort of honeylike substance, sometimes even containing hair and sma bones together." He recommended middle line incision and evacuation of the fluid, if any was present or, if the tumor was solid, withdrawal of it from the wound and treatment with liniments; but said he, "It is easy to remove it with the scalpel." This would indicate that the actual removal by extirpation was practiced at that time.

The prevalence of goiter in those days is further revealed by lay writers. Vitruvius, the architect of the Emperor Augustus Caesar, refers to goiter in his writings on aqueducts and water supply, in which he says that niter-containing waters have a tendency to diminish the size of goiter. Galen, in the second century, does not refer to goiter in his anatomic descriptions, but he speaks of tumors pressing on the windpipe and causing aphonia; he appears familiar with the recurrent laryngeal nerve and warns of the danger of injury to the nerve during operation. Galen and his contemporaries, Heliodorus and Antyllus, have left us no knowledge in reference to goiter, and for centuries their influence maintained silence on the subject.

In the sixth century, Aetius devotes a chapter to goiter. He defines bronchocele as a definite form of tumor involving the gland in front of the trachea and advises operation.

In the seventh century, Paul of Aegina decribes systematically every step and advises caution in the removal of goiter. In Bagdad, in the eighth century, Rhazes discusses the surgical and medical treatment of the disease, while Avicenna in the same University, in the ninth century, sets forth the details of the operation and the dangers attending it.

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*Read at the Fifth Assembly of the International College of Surgeons, Venice, Florida, February 13, 1940

LATER DESCRIPTIONS

The first accurate anatomic description of the thyroid gland comes to us from Wharton, in the seventeenth century; apparently ignoring its function, he named the thyroid from the Greek word meaning "shield."

Haller, in the eighteenth century, was the first to prove that the thyroid is a *gland of internal secretion*, and Cruveilhier, in the middle of the nineteenth century, demonstrated beyond peradventure of a doubt that the gland has no duct and that its secretion enters directly into the blood stream. From then on, the histology and physiology of that important organ were gradually brought into knowledge.

THYROID DEFICIENCY

Claude Bernard and Brown-Séquard, Schiff and Curling led in the experimental work on the thyroid secretion and its importance to the human well being, as well as to the phenomenon of myxedema.

Reverdin, Billroth and Kocher, with their surgical accomplishments, made possible the structural study and interpretation of the functional problems involved by cachexia strumipriva of Kocher. At the same time Horsley proved that myxedema, cretinism and cachexia strumipriva were due to the same cause, thyroid deficiency, and that they were remediable by the administration of thyroid extract alone.

Recognition of deficiency in thyroid secretion as a clinical condition came to us from Billroth and Kocher, who drew their conclusions from clinical observations and from their early experiences with thyroidectomy, following which 96 per cent of the patients manifested symptoms of hypothyroidism or cachexia strumipriva. Schiff in 1884, after animal experimentation, laid the foundation of organotherapy.

EXOPHTHALMOS

The mere observation of the coexistence of goiter, exophthalmos and palpitation—the exophthalmic syndrome, designated the cardinal triad by Flajani in 1788—was followed in 1835 by the clear portrayal of hyperthyroidism as a distinct disease. This was done in a very direct way, by Robert Graves, of Dublin, who wrote, "The enlargement of the thyroid seems to be essentially different from goiter in not attaining a size at all equal to that of goiter and seldom attains serious deformity."

Basedow, in 1840, recognized the cardinal symptoms of exophthalmic goiter, but considered the condition to be due to a masked scrofula.

EFFECT ON HEART

The recognition of the cardiac symptoms of hyperthyroidism and of the immediate benefit to the heart following operation are achievements of our present generation in thyroid surgery, for Kocher, the master mind and pioneer of thyroid surgery, credited the postoperative benefit to the heart not to the thyroidectomy but rather to the postoperative rest, etc.

The significance of the toxic symptoms in Graves' disease in relation to the heart—the so-called "goiter heart"—belongs to the advancements in our modern knowledge of toxic goiter, and the direct benefit to the heart results from the removal of the thyroid, subtotally, or totally, as may be indicated. The improvement in the cardiac condition and the pulse rate are directly due to the reduction of toxic absorption by thyroidectomy.

ADVANCES IN SURGERY

We entered a new era in our modern concepts of the thyroid functional phenomena about the time when anesthesia and antisepsis came into use. Billroth's early experiences showed a mortality of 40 per cent, and Bruberger reported 82 operations prior to the antiseptic period with a mortality of 34 per cent.

According to Halsted, Sir William Blizard was the first to ligate a thyroid artery for the cure of toxic goiter, and Porta first ligated the superior and inferior thyroid arteries. Boeckel, and not Kocher, as generally accepted, is responsible for the "collar incision," while Von Mikulicz originated the bilateral resection of the gland.

It is hard to realize that the advances in thyroid surgery, following the epoch-making contribution of Billroth and his pupils, Von Mikulicz and Wölfler, and the brilliant work and teachings of Kocher and Reverdin of Geneva were met by opposition based on fear. In fact, there were few surgeons prior to 1850 brave enough to undertake or advocate thyroid removal, as shown by the attitude of the profession in France, where the French Academy of Medicine prohibited the operation, and in England, where it found feeble support. There the great Liston admitted the underlying difficulties in the vascularity of the thyroid when he declared, in 1846, "You cannot cut the thyroid gland out of the living body in its sound condition without risking the death of the patient from hemorrhage." In 1870, Samuel D. Gross of Philadelphia, the great surgeon, teacher and writer, drew a picture of the path of the goiter surgeon: "Every step he takes will be environed with difficulty, every stroke of his knife will be followed by a torrent of blood, and lucky will it be for him if his patient lives long enough to enable him to finish the horrid butchery."

Dieffenbach wrote, in 1848, "The operation for goiter is one of the most thankless, most perilous undertakings, which, if not altogether prohibitive, should at least be restricted to cer varieties of the malady."

Watson, the Scotchman, pioneer thyroid surgery in Great Britain, w one of the first to connect the postoper tive improvement in cases of toxic goite with the operation. He practiced liga ture *en masse* of the lateral lobes befor excision, with minimum loss of blood. Kocher, successor to Lücke as director of the Berne Clinic, is, without doubt, the master and the organizer of modern goiter surgery. His distinguished pupil, our learned Professor Crotti, placed the surgical world under everlasting obligation when, in 1918, he published his treatise on the diseases of the thyroid and thymus glands.

The anatomopathologic studies of tumors of the thyroid were first undertaken by Ecker and Rokitansky from 1840 to 1850; continued by Porta, Friedreich and Billroth in 1855; and eloquently described by Virchow in 1867. Virchow endeavored to demonstrate the unity of the origin, beginning with the secreting epithelium of the thyroid, of all true goiters, whatever may be the ultimate structural change, such as colloid, cystic or fibrous goiter.

GOITER A MARK OF BEAUTY

Goiter in the ordinary or common form, the simple or nontoxic type without symptoms or discomfort, the endemic variety, if you please, has not always been considered as a deformity or a physical defect. In fact, within the past century, in certain goiter districts or communities, such as the Valais in Switzerland and the Tarentaise and the Maurienne in the Franco-Swiss frontier, it was considered as a mark of beauty; so much so, that young women with large necks (goiter enlargements) were chosen in matrimony in preference to their sisters without goiters, and if the bilateral swelling of the neck happened to permit the gold heart pendant of a necklace to lodge comfortably between the lobes, it was a mark of extreme beauty and distinction which made the young woman especially desirable as a bride.

In 1751, Keyssler, during a journey through the Valley of Aosta, heard the sermon of a priest who reprimanded his parishioners for being distracted from the Mass by the presence of a stranger with a neck deprived of goiter swelling. The priest said, "My brethren, let us not be proud of the physical betterment that our Lord has given us and of which he has chosen to deprive others."

AUTHOR'S EXPERIENCE

The general considerations and criteria in the surgery of the thyroid gland in all types of goiter are based, in our own personal experience, upon more than 20,000 cases, of which 7,340 have been operated upon over a period of 33 years; of these, 6,340 cases have been definitely reported.

The first series of 2,000 cases operated upon and which we reported in 1907 presented a very light syndrome of toxicity which we did not actually recognize, or no signs and symptoms which, in the light of our present knowledge, would be classed as toxic manifestations. Most of our cases were endemic in type. Many of the patients, referred to us by other friendly patients, submitted to operation solely for the removal of the disfiguring growth, at times notwithstanding the opposition of the family physician; some were prompted to seek surgical relief of pressure symptoms or vocal disturbance. Our operative technic followed the collar incision of Boeckel and the cautious intracapsular extirpation of the incomparable Kocher, whose meticulous care we witnessed many a time. Our results were uniformly gratifying and uneventful. No deaths occurred from sepsis or from hemorrhage, and the few remote fatalities we observed were from malignant metastasis, cardiovascular or cardiorenal complications or suddenly from embolism, the total number of deaths being less than 3 per cent.

Our second series of 2,000 thyroid operations reported in 1917 brings out our experience with hyperthyroidism as a factor in postoperative recovery, and especially the immediate postoperative storm, for which we had limited experience and which we combated only on a symptomatic basis instead of by metabolic management, the value of which was insufficiently understood at that time. With it all, however, our total mortality rose only to slightly over 4 per cent.

In our third series of 2,000 operations, reported in 1927-28, the increasing incidence of toxic phenomena with marked metabolic unbalance, emotional instability and cardiovascular damage made our operative work more hazardous than in our early experience, but pari passu with these problems of postoperative reactions, postoperative storms or thyroid crises, we began to receive help from the researches and experiences of the leading thyroid clinics of the world. With this help we overcame the difficulties which we encountered and entered upon a new era of selective preparation of our patients, thus lessening the risk and doing away with disturbing complications.

The last 340 cases (of our series of 6,340 accurately reported) were uniformly hospitalized for observation and clinical study, in preparation for surgical treatment. The study included carefully recorded case histories and a clinical check-up on basal metabolism; blood chemistry, with emphasis on blood cholesterol, calcium and phosphorus; blood counts, electrocardiographs and fluoroscopy. These patients were given special diets and rest with the definite purpose of increasing their weight, it being our judgment, drawn from our own experiences, that no thyrotoxic patient is a fair operative risk when losing weight, notwithstanding rest, sedation and hypercaloric and nutritious diet.

In this series we encountered recurrences of hyperthyroidism in 3 to 5 per cent of the cases, and persistence of hyperthyroidism following operation in 2 per cent of the cases. Three cases of this series manifested slight tetany which disappeared within a few days, and temporary myxedema which corrected itself without any special treatment within six weeks to three months. Postoperative aphonia of a few days' duration has been observed in a few instances where radical extirpation has been carried out, but without injury to the recurrent laryngeal nerve as proven by the complete return of vocalization.

The histologic study of the tissue removed was invariably checked against the clinical picture of the individual case in an effort to correlate postoperative clinical and diagnostic findings with tissue changes in the thyroid gland.

The wealth of planned classifications of goiters, such as Plummer's, DeQuervain's and Sloan's, serve their purpose in covering the multiplicity of types of structural changes in the thyroid parenchyma, both in the physiological as well as in the morbid conditions, but diagnostic classification loses its charm at the operating table and at the bedside, and no particular value comes to us from fixing a standard of clinical guidance based upon the network of the structural variety. Symptomless goiters often present surprising histologic pictures, while goiters with a marked clinical syndrome reveal simple structural changes.

In our large thyroid clinical material, we have operated upon true lingual goiters (located at the embryonal anlage) and also sublingual goiters, a number of thyroglossal duct cysts and pyramidal lobe hypertrophies, retrolaryngeal and retrotracheal goiters and retrosternal, intrathoracic and mediastinal goiters, all of which, by virtue of their abnormal position, the pressure which they exert upon important adjacent structures and their vulnerability to rapid retrogressive degeneration and malignancy, should be dealt with surgically as early as diagnosed. Fluoroscopy and x-ray films are of value in verifying or excluding the entension of thyroid enlargements into the thoracic cavity, for abundant subcutaneous fat and marked muscular development often obscure palpatory signs of retrosternal or intrathoracic extension of the lateral and the median lobes.

CASE REPORT

The single case of lingual goiter, the only one we have encountered, merits some reference in that we did not operate for the removal of a lingual goiter but for a tumor at the base or root of the tongue in front of the epiglottis at the foramen caecum, the embryonic location of thyroid tissue.

The patient was a young Italian multipara, who recited the following unusual but arresting story: that she was usually pregnant every year for the past six years, that for the first three months of each of her pregnancies she had bleeding from the mouth, and that a lump at the base of the tongue became larger and would bleed. She was referred to me by a nose and throat specialist, who suspected that the growth might be malignant, notwithstanding the fact that the condition had existed for three or four years.

For the removal of the tumor, we carried out the following technic, briefly described: extraction of a central tooth of the mandible, division of the mandible at that point and lateral retraction of the ramus, thus permitting forward traction of the tongue and free exposure. A week before this operation, we had performed a low tracheotomy, and during the present operation, by tube and ether insufflation through the tracheotomy opening, the patient received general anesthesia, the pharynx having been packed with moist sterile gauze. The tumor was radically extirpated and the base of the tongue reconstructed. To our surprise, the pathologist reported that the specimen demonstrated nothing but thyroid tissue, and he suggested that, by virtue of the comprehensive resection, we had probably removed her entire thyroid gland and that we should look for signs and symptoms of myxedema. Sections of the tissue were sent to the Mayo Clinic which confirmed the his [illegible] report. The patient made [illegible] covery and has enjoyed excellent health, without any manifestations of thyroid deficiency. The inference is that accessory thyroid tissue elsewhere in the neck or chest is supplying her functional demand for thyroid.

OTHER CASES

The continuity of structure of the thyroid gland, especially with reference to lymphoid tissue, and the vulnerability of the thyroid to infection from tonsillar and pharyngeal foci has afforded us opportunity to see a number of cases of acute metastatic thyroiditis running a typical clinical course of acute infection with resolution and return to normal. We have also treated two cases of metastatic inflammation of one lobe of the thyroid following acute tonsillitis, with coagulation, necrosis and sloughing of the entire left lobe of the thyroid, which was easily enucleated, capsule and all. The wound was closed with drainage. Good recovery resulted.

We have had only one case of true tuberculous inflammation of the thyroid gland with caseation of the thyroid tissue and the formation of a retrosternal tuberculous abscess, which healed only after trephining the sternum at the most dependent portion of the abscess in order to obtain better drainage. Apical tuberculosis over limited areas was demonstrated by x-ray films, but the patient regained good health and remained well during the ten-year follow-up.

We observed the case of a male, 40 years of age, who had what can be properly termed a vascular goiter and whom we demonstrated in the Students' Clinic, but with whom further follow-up is impossible because his whereabouts are unknown. This man showed a normal neck in the anteroposterior as well as in the lateral positions. On palpation we detected a soft throbbing area in the lateral aspects of the lower neck. On auscultation we found no aneurysmal signs, but when the patient held his breath at full and complete inspiration, we observed the appearance of the two lobes of the thyroid, just above the suprasternal notch, of the typical pyramidal shape of the thyroid connected by the isthmian portion. As soon as he released his inspiratory control, we observed the gradual disappearance or emptying out of the vascular tumor. Our inference was that the thyroid enlargement was, for the most part, made up of vascular tissue composed of a network or plexus of thyroid veins and arteries in scant mesh or fibrous stroma, with probably little or no glandular element.

We had two cases of apoplexy of the thyroid, if I may be permitted to use this figure of speech to describe sudden hemorrhage within the thyroid capsule.

One was the case of a woman 58 years old with a large globular goiter of long standing, endemic in type. One evening, without trauma and without initial pain, she experienced profound syncope and her family physician found her in collapse, with all evidence of internal hemorrhage. Her large goiter showed rapid swelling and tension and caused increasing pain. A diagnosis of hemorrhage within the goiter seemed obvious to the attending physician. Rest and supportive treatment appeared adequate, since the hemorrhage was self limited within the thyroid capsule. Aside from added pressure from the sudden distention from hemorrhage and clotting, causing dyspnea, the patient reacted, and a thyroidectomy performed a few days later demonstrated large clots in the center of a widespread area of colloid cystic thyroid degeneration. Close examination of the tissue showed sclerotic arteries and a thick external capsule, which withstood the concentric pressure from the bleeding.

A second case of hemorrhage in degenerating goiter, involving, however, only the left lobe, revealed marked local arteriosclerosis in a focus of limited bleeding.

Cases of chronic fibrous thyroiditis with positive blood Wassermann reactions, which responded to antisyphilitic treatment, have been helped without surgery. Huge degenerating goiters, partly intrathoracic and mediastinal, with varicosity of the veins of the thoracic wall and arm, hemothorax and heart displacement have been relieved by thoracocentesis and cured by thyroidectomy in two stage intervention.

Our citation of these unusual cases, while having no practical value in daily thyroid clinical observations, illustrates the many sided morphology and morbidity of the thyroid structure.

TREATMENT

The criterion of the late Dr. John B. Murphy in reference to the broad application of surgical procedure in the treatment of goiter, briefly summarized, was that exophthalmic goiter or primary hyperthyroidism should be treated surgically, and that simple nontoxic goiters, including all other types of long standing goiter tumors in patients over 25 years of age, should be considered selective for surgery.

Pubertal goiter, or rather thyroid hypertrophy appearing in the premenstrual age and continuing to full adolescence, demands conscientious judgment on the part of the general practitioner as well as the surgeon to avoid error in treatment. Thyro-ovarian unbalance may be physiological, and if this is the case, the routine administration of iodine or iodides is contraindicated and frequently is harmful; this is also true of surgical procedure. General hygienic and dietetic regulations often encourage nature's functional adjustment.

The menopausal threshold in the presence of long standing goiter, accompanied by the neurocirculatory syndrome, vasomotor phenomena, etc., frequently leads to a misinterpretation of etiologic factors; here again cautious evaluation of signs and symptoms may prevent hasty conclusions and needless surgery.

Hyperthyroidism, on the other hand, permits early and radical surgical treatment, and, equipped as we are with measures of diagnostic aid and adequate preparation, radical surgery is definitely successful. Barring a small percentage of cases of recurring or persistent hyperthyroidism which require reoperation, surgery still affords the most effective cure for hyperthyroidism.

Inasmuch as the primary etiologic factor in Graves' disease is almost certain to exist outside the thyroid itself, further research is needed to elucidate this question; the suspected pituitary has not yet been proved to be the causal agent. Absurd as it seems to remove the thyroid, which is perhaps merely the victim, the practical experience of surgical results needs no further proof.

All forms of simple goiter, with or without hereditary background, which have long been apparent, even though not disturbing the health and fitness of the individual, should be regarded as potentially surgical, on the following counts: First, all long standing thyroid growths tend to eventual retrogressive degeneration, toxic functioning or malignancy; second, long standing goiters slowly and insidiously upset metabolism, and through toxic damage to the cardiovascular system by toxic activation, ultimately present the thyrocardiac syndrome of premature senility with attending complications brought about by long standing thyrotoxicosis.

CONCLUSION

In conclusion, we have briefly reviewed the chronological evolution and the salient landmarks in the history of goiter as recorded in the annals. We have cited outstanding clinical experiences in our work since 1897, with extensive and varied goiter material. We have kept in close touch with the leading thyroid clinics of the world and are conversant with the abundant literat
from research sources and clinicians
have guided our own observati
the wealth of contributions from
authorities. We believe with
conviction that until further
and experiment reveal the
prophylaxis on goiter inciden
other successful methods

are discovered, surgery will continue to provide the largest measure of help and cure in disorders of the thyroid gland.

SUMMARY

Although iodine in the form of sea water and sea weeds was used by the Greeks in antiquity for the treatment of tumors and swellings about the neck, it was not until the nineteenth century that the histology and physiology of the thyroid gland were known. Goiters occurring at puberty and at the menopause require cautious evaluation in order to prevent hasty conclusions and needless surgery. All cases of exophthalmic goiter or primary hyperthyroidism and all cases of goiter of long standing in patients over 25 years of age should be considered selective for surgery.

DISCUSSION

Dr. André Crotti (Columbus, Ohio): Modesty and a sense of justice is always the hallmark of superiority. Dr. Roman, by his thoroughness in presenting the historical aspect of goiter problems and thus according credit where it belongs, sets an example which it would be well to follow. Similar examples of the latter were shown yesterday in the papers of Dr. DeMuth and Dr. Temple Fay, both of whom went to great lengths to give credit to the ones who have preceded them in their fields and to whom they accorded priority.

Anyone who has had a large experience in thyroid pathology reaches the conclusion which Dr. Roman reached today, namely, that most of the goiters are surgical entities. He cited a few exceptions and gave excellent reasons to support his view, a point of view which today is accepted by the great majority of surgeons. In my own experience I follow the same principles. When confronted with a goiter the first step is to classify that goiter, to settle in one's own mind that that thyroid condition is either a simple medical problem or a surgical case. Second, the question imposed is whether that goiter is of the toxic or nontoxic variety. Third, what is the line of conduct to be followed? Let us assume that we are dealing with a nontoxic goiter, of colloid, cystic, calcareous or other type. Such goiters will not yield to any form of treatment and are essentially surgical problems from the start. Assuming that the particular thyroid condition is purely of the parenchymatous type and toxic, the vast majority of these cases are surgical. However, in young individuals up to the age of 18 years, in incipient forms of thyrotoxicosis with undesirable glandular enlargement, though the toxic symptoms be very marked, I do not like to resort to surgery. However, I operate, have operated and will continue to do so later if these patients do not respond to medication and especially to x-ray therapy. In young individuals x-ray therapy is very valuable and in certain instances frustrates the necessity to operate. I recently saw a woman about 26 years of age affected with what Dr. Roman described as "nontoxic vascular goiter." The pulse ranged between 65 and 70 beats per minute; there was no tremor and no ocular symptoms. She had a marked puffiness of the whole face and there was no pitting on pressure. She gave the impression of hypothyroidism with myxedematous symptoms. To all intents and purposes this case should be treated with thyroid medication, despite the high metabolic rate, which was plus 22. Another young boy had a metabolism of 24 minus, with exophthalmos and vascular gland and all the symptoms pointed to toxic goiter. Thyroid medication completely relieved him in about three weeks, with disappearance of all vascular and ocular symptoms. Individualization and proper classification are the keynotes to proper therapy. I enjoyed immensely Dr. Roman's presentation, and I desire to extend to him my heartfelt congratulations.

Dr. M. L. Curtner (Vincennes, Ind.): I should like to ask if x-ray would be of any benefit in diagnosing substernal goiter.

Dr. C. D. Brooks (Detroit): I wish to say just one word regarding Dr. Roman's paper. He said, "Don't let the metabolic rate tell you whether or not you should operate." If the patient doesn't do well, doesn't sleep well, doesn't eat well and hasn't gained weight, postpone the operation until he does. Don't let blood cholesterol or any other laboratory test tell you that you can go ahead and do a one-stage operation, that you had better do in two. Let your clinical judgment guide you more than laboratory tests. Sometimes laboratory tests are worth nothing at all, but when a patient doesn't sleep well and doesn't eat well under moderate and good conditions, it is best to take the internist's advice and treat the patient further medically.

Dr. Roman: Answering the question as to whether x-ray is of help in diagnosing substernal goiters, it is of help. I referred to it. A fat neck, also a masculine development, can conceal thyroid hypertrophy and there the x-ray shadow is of value.

RÉSUMÉ

Considerations générales sur la chirurgie de la glande thyroïde

Les anciens Grecs utilisaient l'iode sous la forme d'eau de mer et de plantes aquatiques d'eau saline dans le traitement des tumeurs et gonflements cervicaux. L'histologie et la physiologie de la glande thyroïde sont des découvertes du dix-neuvième siècle. Les tumeurs thyroïdes de la puberté et de la ménopause souvent ne demandent aucune intervention chirurgicale. Les cas de goître exophthalmique et tous las cas de goître de longue durée sont du domaine de la chirurgie.

ZUSAMMENFASSUNG

Kurzer Rückblick und allgemeine Betrachtungen über die Chirurgie der Schilddrüse

Trotzdem Jod in der Form von See-

wasser und Tang schon von den alten Griechen für die Behandlung von Tumoren und Schwellungen des Halses angewandt wurde, wusste man bis zum neunzehnten Jahrhundert nichts über die Histologie und Physiologie der Schilddrüse. In Bezug auf die chirurgische Behandlung von Störungen der Schilddrüsenfunktion sollte folgendes beachtet werden: In Kröpfen der Pubertät muss die Indikation sehr sorgfältig gestellt werden, da die Natur sehr oft mit einiger Hilfe eine funktionelle Rückkehr zur Norm bewerkstelligt. Die Gegenwart von Kröpfen an der Schwelle der Wechseljahre erfordert ein ebenso gewissenhaftes Denken um über ilte Schlüsse und unnötige Chirurgische Eingriffe zu vermeiden. Andererseits sind alle Fälle von exophtalmischem Kropf und primärem Hyperthyreoidismus potentielle chirurgische Fälle und alle anderen Arten von lang dauernden Kröpfen in Patienten über 25 sollten für Chirurgie in Betracht gezogen werden.

SUMARIO

Retrospectiva breve y consideraciones generales en el criterio de la cirugía de la glandula tiroidea

Aunque yodo en la forma de agua marina y plantas marinas fue usado por los Griegos antiguos para el tratamiento de los tumores é inflamaciones de el cuello, no fue hasta el siglo XIX que la histología y fisiología de la glandula tiroidea fue conocida. El aproche quirúgico en el tratamiento de los trastornos de el tiroide, lo siguiente debe ser observado: En bocios de la pubertad, juicio conciente debe de ser ejercido, tan frecuentemente como la ayuda natural haga sus ajustamiento funcional. La presencia de un bocio en la menopausia, igualmente requiere cuidado y evaluación para evitar concluciones rapidas y cirugía innecesaria. De otro modo, todos los casos de bocio exoftálmicos ó hipertiroidismo primario son casos quirúgicos potenciales, y todos los otros tipos de bocios de larga duración y tumores en enfermos de mas de veinticinco años de edad, deben de ser considerados como selectivo para cirugía.

RIASSUNTO

Breve sguardo e considerazioni e criterii generali sulla chirurgia della ghiandola tiroide

Sebbene lo iodio nella forma d'acqua e di erbe marine, fù usata dagli antichi Greci per la cura dei tumori e gonfiori del collo, non fù che nel 19mo secolo che l'istologia e la fisiologia della ghiandola tiroide fù conosciuta. Nella cura dei disturbi della tiroide, dal punto di vista chirurgico, le seguenti idee dovrebbero essere osservate: Nei gozzi della pubertà, si deve esercitare giudizio scrupoloso, dato che frequentemente, con un poco di aiuto, possono riaggiustarsi funzionalmente. La presenza del gozzo al principio della menopausa, similmente, richiede evaluazioni caute per prevenire conclusioni premature e chirurgia superflua. D'altra parte, tutti i casi di gozzo esoftalmico o di ipertiroidismo primario sono possibili casi chirurgici, e tutti gli altri tipi di gozzi di lunga durata in ammalati sopra i 25 anni d'età dovrebbero essere considerati eccellenti per la chirurgia.

METHODS PREFERRED IN CLEFT-LIP AND CLEFT-PALATE REPAIR*

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From the Maxillo-Facial Division of the Department of Surgery, Jefferson Medical College Hospital

PHILADELPHIA

THIS presentation will not attempt any review of the extensive cleft-lip and cleft-palate literature, or descriptions of the many operations which have been devised for the correction of these deformities, but will be limited to the methods which in our own experience and observations covering a period of 27 years have proved to be of the greatest practical value in securing the best functional and cosmetic results.

We believe cleft-lips should be repaired as soon as the child is in sufficiently good condition to stand the operation. That is usually some time between the third day and the third month. Simple incisions as a rule give better anatomic approximations than do those with complicated geometric designs. The

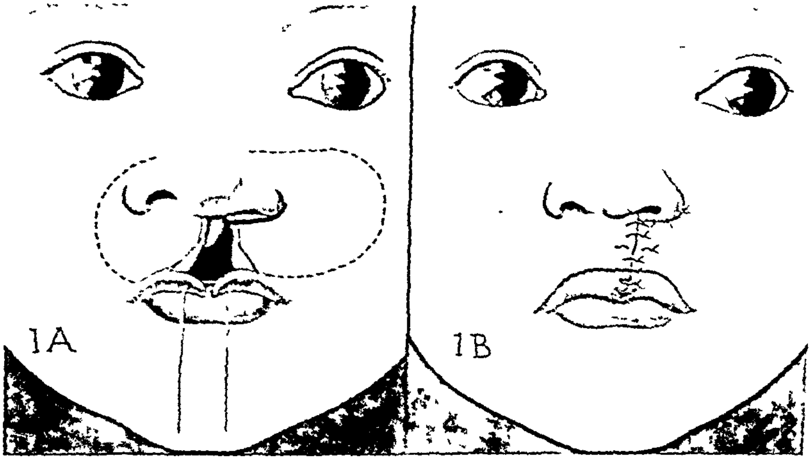

Fig. 1. *A*, Semi-diagrammatic sketch showing incisions used in unilateral cleft-lip repair. Dotted lines indicate extent to which lip and cheeks are freed from the anterior walls of the maxillae. Incisions to form the flaps shown followed the vermilion border. The lines above the points from which the superior ends of the flaps came outline incisions which will be carried slightly more than half way through the superior portion of the margins of the cleft, thus forming flaps which will be turned posteriorly and sutured together, adding somewhat to the thickness of the lip in that area. The heavy line indicates location of a through and through incision carried from the alar fold to the margin of the lip to facilitate placing the ala at the proper elevation and making the nostril approximately the same size as that on the sound side. *B*, Drawing showing margins of cleft approximated. Some tissue was removed from the medial portion of the alar flap to form a nostril of proper width. Excess portions of marginal flaps were excised; sufficient tissue was left to give slight fullness to free edge of lip. A Logan bow is routinely used for 8 days to eliminate tension of suture lines.

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*Read at the Fifth Assembly of the United States Chapter of the International College of Surgeons, Venice, Florida, February 13, 1949.

scarring is usually less conspicuous, and the later muscle action and the expression about the mouth are more nearly normal than in those cases in which muscle fibers are not placed in their normal direction.

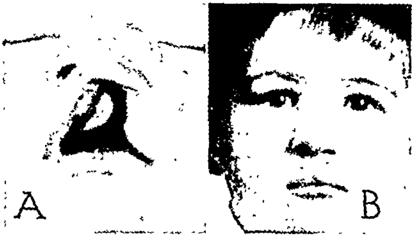

Fig 2. *A* and *B*, Case No H-248. *A*, Age four months. Complete unilateral cleft lip and cleft palate, with marked rotation of premaxilla. *B*, Age six years, showing contour of lip and nostrils Operation was by method outlined in Fig. 1.

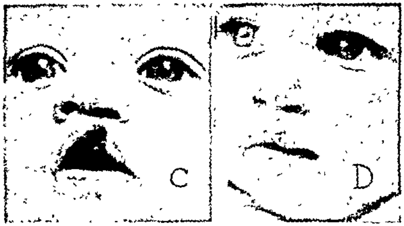

Fig. 2. C and D, Case No. H-125. C, age 7 months. Incomplete unilateral cleft lip. Note the absence of muscle tissue between the superior angle of cleft and floor of nostril and the consequent widening of the nostril. *D*, Appearance of lip and nose 10 months after operation.

UNILATERAL CLEFT LIP

In our early cleft-lip work, we followed chiefly the basic principles of J E. Thompson's methods, later making such variations, modifications and additions as were found better adapted to the different types of deformities or to the requirements of the individual case. In 1929 and 1930, the majority of our cases of *unilateral* cleft lip were repaired by the Mirault-Blair method, but in 1931 we returned to and have continued to use our modified Thompson method.

Technic. The incisions now used in unilateral clefts are shown in Fig. 1. With the lip freed from the maxillae as outlined, the margins of clefts are readily approximated without undue tension. We find a through and through incision in the line of the alar fold and thence extended slightly downward to the medial margin of the lip to be of great value in obviating the angulations about the alae and also in providing a better skin surface to form the floor of the anterior naris In making the approximations, the alae must be placed on the same level and the nostrils made approximately the same size and as nearly symmetrical in contour as can be obtained

After the sutures which hold the alae in their proper position, the next most important suture is the one accurately approximating the vermilion border. In finishing the free edge of the lip, just enough of the flaps is removed to leave *sufficient fullness to avoid any notching* from subsequent contraction in the suture lir (fig. 1*B*). In repairing an [illegible] lip, the incisions must be carried into the nasal floor in order to secure approximation of muscle tissue in the upper portion of the lip and a nostril of the proper width.

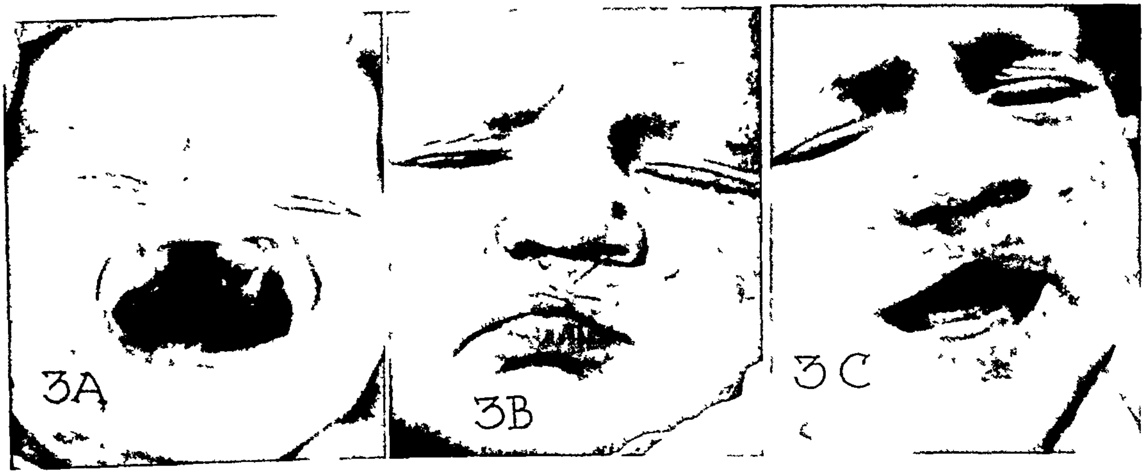

Fig 3—Case No. H-16. *A,* Age four weeks. Bilateral cleft lip and cleft palate. *B,* Showing appearance of lip and nostrils two months after operation. The philtrum was trimmed to a "V" shape and the lateral portions of the lip were approximated to it and to each other below the apex of the philtrum. Note the tightness of lip between the vermilion border and the philtrum. *C,* Tightness of lip is exaggerated by crying, smiling or laughing.

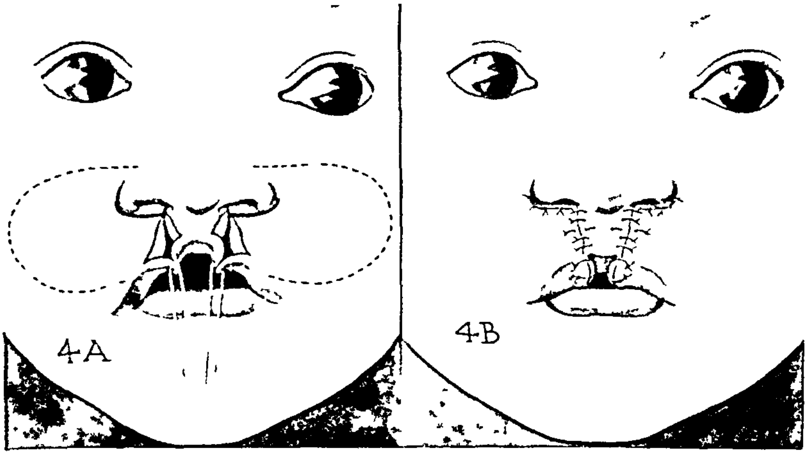

Fig 4 *A,* Semi-diagrammatic sketch showing incisions used in first stage of our repair of bilateral cleft lip. Note that the entire philtrum is preserved Dotted lines indicate extent to which lip and cheeks are freed from the anterior walls of the maxillae. Heavy lines indicate incisions through entire thickness of lip starting in alar folds and extending to edge of cleft in lip to allow placing alae in better position to form symmetrical nostrils of proper width. *B,* Margins of clefts and flaps have been approximated Note the excess fullness of free edge of lip at each side of philtrum These prominences are advanced into the midportion of free edge of lip at the next operation

BILATERAL CLEFT LIPS

The repair of bilateral cleft lip by trimming the philtrum to a "V" shape and approximating the lateral portions of the lip to it and to each other below it sometimes gives rather good-looking nostrils, but the lips are apt to be unsatisfactory later because of a tight transverse line which tends to form between the vermilion border of the lip and the apex of the triangulated philtrum. This tight line becomes more apparent when the patient is smiling, laughing or crying (fig. 3*B, C*). Therefore, since 1918, we have seldom used that method, preferring to preserve the entire philtrum by our method shown in Fig. 4. This method requires two operations, preferably one to two years intervening between them, but the ultimate results more than justify the additional hospitalization and secondary adjustments. In the interval between the operations, the continuous downward and lateral traction made upon the philtrum by the lateral portions of the lip greatly increases the size of the philtrum in all its dimensions (fig. 5), allowing it to fulfill its normal functions in the formation of the central portion of the lip.

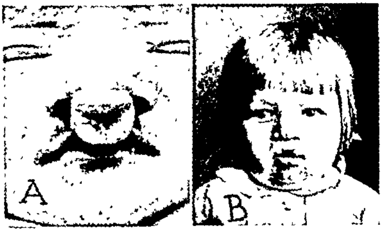

Fig. 5.—Case No. H-172. *A*, Age five weeks. Complete bilateral cleft of lip and palate with marked anterior rotation of premaxilla. *B*, Age seventeen months. Appearance of lip and nostrils 15½ months after first stage of repair by method shown in Fig. 4. Lateral fullness of free margin of lip will be advanced into midportion at next stage of operation as shown in Fig. 6.

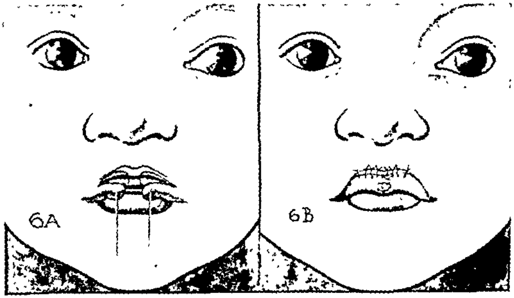

Fig. 6 *A*, Semi-diagrammatic sketch showing incisions by which the lateral fullness formed by the first step in bilateral cleft-lip repair (Figs. 4 and 5) are made into single-pedicled flaps to be advanced to meet each other in the mid-line. Heavy line in lip indicates incision carried vertically into lip for an average distance of 1/6 inch. This forms a recess between the skin and mucous membrane surfaces into which the advanced flaps are placed. *B*, The ends of flaps are sutured together, then sutured to the skin and mucous membrane margins.

The second operation in the double cleft lip repair is the advancement of the lateral fullness formed by the first operation into the free margin of the philtrum, as shown in Fig. 6. The photographs of the case in Fig. 7 show the results of such repair. Note the lack of transverse tension in the lip.

In bilateral cases with marked protrusion and rotation of the premaxilla, it is best to avoid, when possible, the excision of any portion of the vomer. Such excisions, whether triangular or quadrilateral in shape, usually leave the premaxilla unduly movable. If the premaxillary protrusion is so great that closure of the clefts in the lip cannot be completed without undue tension, we have found that carefully splitting the vomer and bulging its sides (fig. 8) will often allow the premaxilla to be placed in a better position without causing its permanent mobility. The premaxilla very seldom requires wiring in infants, but in some older children it may be necessary in order to secure the best cosmetic results.

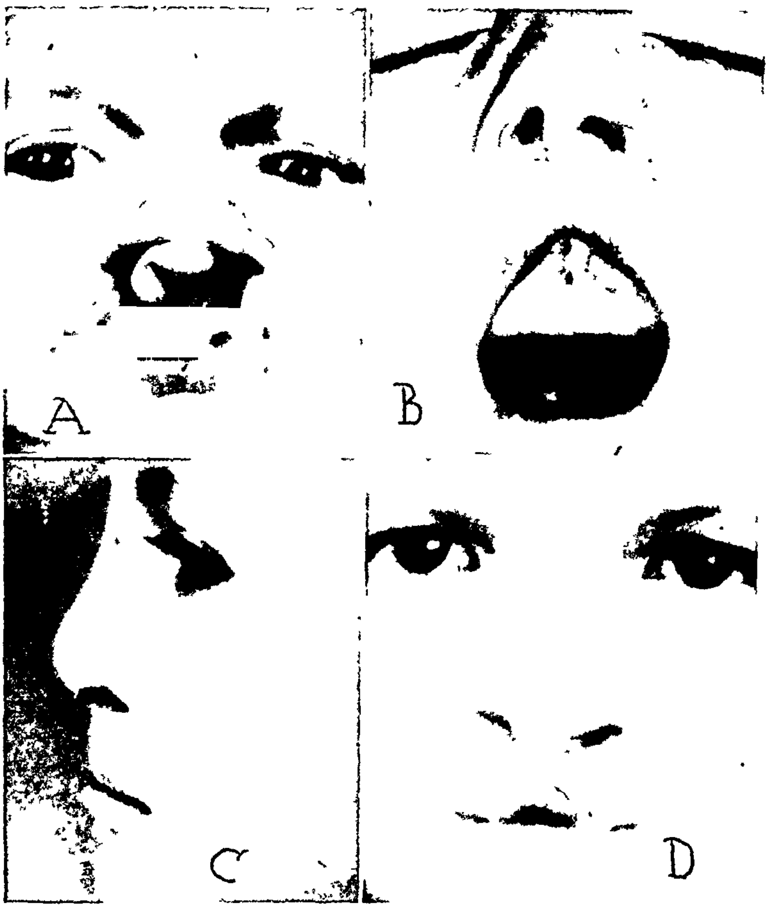

Fig. 7.—Case No. H-273. *A*, Age 2½ months. Complete bilateral cleft of lip and palate. Note marked rotation of premaxilla and shortness of columella. Lip repaired in two operations by method described in Figs. 4 and 6. *B*, Age 6 years, showing contour of repaired lip, nostrils and palate. *C*, Note absence of any contraction line in lip. *D*, Tip of nose was elevated by advancing midportion of philtrum to lengthen columella.

In some instances a third operation involving the lip may be indicated to elevate the tip of the nose. In such cases the central portion of the philtrum is elevated and advanced sufficiently with the columella to place the tip of nose where desired. This was done in the case shown in Fig. 7*D*.

In secondary reconstruction of poorly repaired lips, it may be necessary to make incisions sufficiently extensive to convert the lip into its original type of cleft and then reconstruct it from that point. In some instances, the depression of the nasal tip and the poor contour of the dorsum nasi can be definitely improved at the one operation (fig. 9).

CLEFT-PALATE REPAIR

Our most satisfactory functional results in cleft-palate repair have been obtained in the cases operated upon some time between the ninth and the twenty-second months, variations in the exact

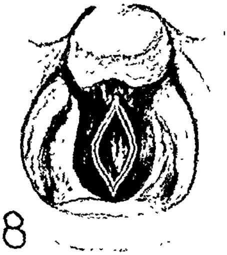

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Fig. 8. Semi-diagrammatic sketch showing location of incision allowing antero-inferior portion of the vomer to be split to permit bilateral bulging of the sides of the vomer when the premaxilla is placed in more nearly normal position.

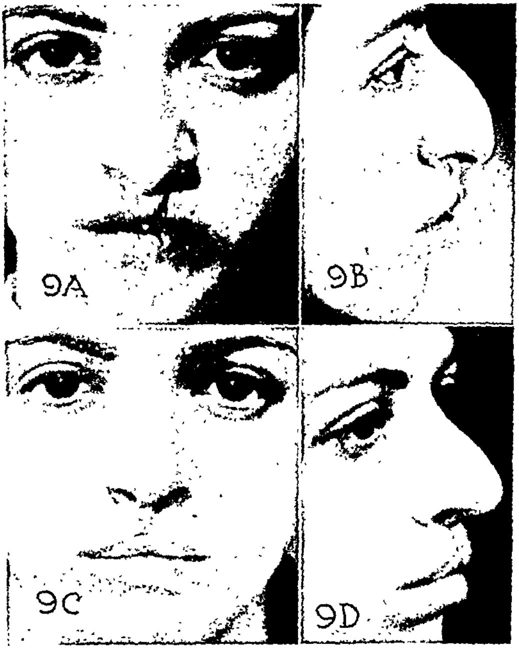

Fig 9.—Case No H-1097. A, Age 25 years. Poorly repaired bilateral cleft lip with excess scar tissue and undue anterior prominence of philtrum. *B*, Profile *showing* excess convexity of dorsum nasi exaggerated by the traction on tip *of nose* because *of* short philtrum. *C*, Philtrum was elevated and advanced with the short columella to place tip of *nose in* better *position*. Greater portion of excess *convexity* of nose removed at same operation. *D*, Three-quarter *view* appearance of lip and *nose* three months after [illegible]ation.

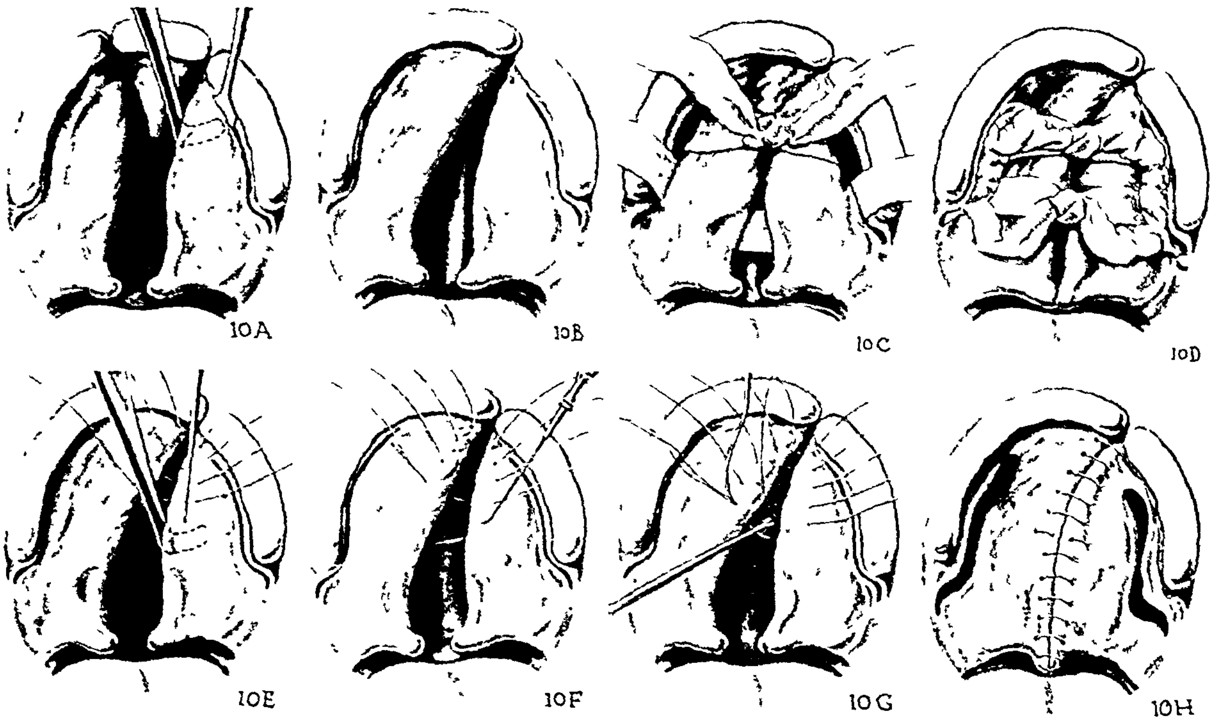

Fig. 10. *A*, Drawing of complete bilateral cleft palate showing incisions carried through mucoperiosteum of alveolar processes. Mucoperiosteum has been loosened from the alveolar processes to the beginning of the horizontal processes of the maxillae and the palate bones. A sharp thin chisel is shown in position to divide the bone. Firmly supporting the horizontal processes with the retractor while the chisel is being used helps to prevent the bone in the flap from being loosened from the mucoperiosteum. *B*, Drawing of complete unilateral cleft palate showing outline of incisions used in loosening the mucoperiosteal flap on the side attached to the vomer; also the osteo-mucoperiosteal flap containing the horizontal process of the maxilla and of the palate bones on the unattached side. *C*, Drawing of complete unilateral cleft palate showing iodoform gauze tapes passed completely around the osteomucoperiosteal flap and the mucoperiosteal flap. The tapes are tied so as to hold the medial margins of the flaps in apposition, or nearly so. Care should be taken that the pressure from the tapes is not sufficient to shut off circulation. *D*, Drawing showing both tapes tied and their ends used as packs in the lateral incisions to control any bleeding from branches of the posterior palatine vessels. *E*, Drawing showing the insertion of 00 wire sutures *before* the mucous membrane is removed from the medial margins of the flaps. Note that the osteoplastic flap is firmly supported by the retractor while a hole is being drilled through the bone where the last wire suture will be placed. *F*, Drawing showing 00 wire suture passed through drilled hole in osteoplastic flap, using a special carrier needle. *G*, Drawing showing silk suture passed through flap by means of a carrier staff needle. The suture is picked up as shown, the carrier needle withdrawn and the sharply bent end of the wire placed in the loop of silk thread and then drawn through the flap. *H*, Drawing showing the wire and black silk sutures tied. A single iodoform gauze tape will be placed around the flaps and tied just tight enough to take tension from suture line without interfering with circulation, such tape to be removed in 3 or 4 days. Lateral incisions heal rapidly by granulation.

time elected depending upon the child's general health, freedom from paranasal sinus infections and the width of the cleft.

Palatal clefts in which the hard palate is involved—unilateral or bilateral, incomplete or complete—are preferably repaired by a two-stage operation, the operations usually being from 7 to 12 days apart. Osteoplastic flaps are used in practically all cases. In bilateral clefts, an osteoplastic flap is brought medially from each side, while in unilateral clefts an osteoplastic flap is brought medially from the side not attached to the vomer and a mucoperiosteal flap is brought from the attached side. The detailed technic of this operation was described in a paper published in the *Pennsylvania Medical Journal*, November, 1939. Fig. 10. *A-H*, is from that publication and with the legends, I believe the pro-

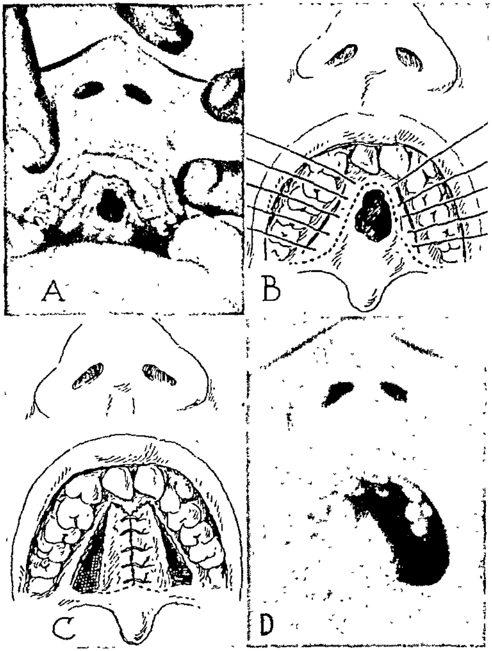

Fig. 11. Case No. H-29 *A*, Age 17 years. Bilateral cleft of palate to premaxilla. Opening persisting in the hard palate after an unsuccessful attempt to repair cleft by use of mucoperiosteal flaps when patient was one year old. *B*, Semidiagrammatic sketch of palate shown in *A* Dotted line indicates margins of bony cleft. Incisions through mucosa and bone of horizontal processes of maxillae and palate bones indicated by lateral lines. Wire sutures, size 00, are shown in position. *C*, Semi-diagrammatic sketch showing approximation of the margins of the opening shown in *A*. The sites of the green-stick fractures are indicated anteriorly, as are the posterior ends of the bones in their new position. *D*, Photograph of palate two months after operation.

cedure is readily understood. This method is of advantage because it gives a minimum raw area on the nasal side of the palate and consequently less scar tissue contraction; moreover, by securing the greatest possible length to the palate and the least interference with muscle action, it gives the best speaking voice we have obtained. In some cases speech is practically normal without special training, but in the majority of cases speech training is of value, when and where the cooperation of an adequately prepared teacher is available.

Closure of openings which persist in the hard palate after unsuccessful attempted repair by the use of mucoperiosteal complished by very little modification of this osteoplastic method. A typical case is illustrated in Fig. 11.

SUMMARY

Our best functional and cosmetic results in cleft-lip and cleft-palate repair have been obtained by: (1) early repair of lip defects; (2) the use of simple lines of incision rather than complicated geometric designs; (3) accurate anatomic approximations, with the least possible trauma to tissues; (4) the preservation of the entire philtrum in bilateral cleft-lips; (5) the use of osteoplastic flaps in cleft-palate repair; by a two-stage operation and meticulous care in cutting the flaps and in inserting the wire sutures, bone is now very seldom lost from the flaps; (6) obtaining the greatest possible length to the palate, the minimum scar tissue contraction and the least interference with muscle action, which gives the best quality speaking voice; (7) speech training in many cases, when and where an adequately prepared teacher is available.

RÉSUMÉ

Les methodes préferées dans la réparation du bec-de-lièvre et des fentes palatines

Les méthodes que 27 années d'expérience ont permis à l'auteur d'obtenir les meilleurs résultats fonctionnels et cosmétiques sont décrites dans cette communication. L'auteur recommande: 1°. la réparation précoce de la fente labiale: 2°. l'emploi d'incisions simples de préférence aux incisions géométriques compliquées: 3°. le rapprochement anatomique exact; 4°. la conservation du philtre dans le cas de becs-de-lièvre bilateraux: 5°. le recous dans les fentes palatines à des lambeaux osteoplastiques: 6°. d'obtenir la plus grande longueur possible du palais et le minimum de contraction cicatricielle et d'interférence fonctionelle des muscles afin d'assurer la meilleure voix possible; 7°. un enseignement phonétique bien réflechi et prolongé.

ZUSAMMENFASSUNG

Methoden der Wahl in Hasenscharten- und Gaumenspaltenplastik

Der Autor beschreibt Methoden die im Lichte seiner 27 jährigen Erfahrung die besten funktionellen und kosmetischen Erfolge zu verzeichnen haben. Folgende werden empfohlen: Frühe Plastik des Lippendefekts: die Anwendung einfacher Inzisionen anstatt schwieriger geometrischer Figuren; sorgfältige anatomische Annäherung mit geringst-möglichen Trauma für die Gewebe; Erhaltung des ganzen Philtrum in beiderseitiger Hasenscharte; die Anwendung von Knochenlappen für Gaumenspaltenplastik; die Erzielung einer grösstmöglichen Länge für den Gaumen, geringste Narbenkontraktur und die kleinste Beeinträchtigung der Muskeltätigkeit um eine bestmögliche Stimme zu ermöglichen; Sprachübungen, wenn ein speziell vorbereiteter Lehrer verfügbar ist.

SUMARIO

Método preferido en la operación del labio leporino con hendidura de la boveda palatina

Métodos ideados en la experiencia de 27 años produciendo los mejores resultados funcionales y cosmeticos en el tratamiento del labio leporino son descritos aqui. Lo siguiente es aconsejado: (1) reparación temprana de los defectos del labio; (2) el uso de lineas de insición simples en lugar de los diseños geometricos complicados; (3) perfecta aproxcimación anatómica, con el menos traumatismo posible de los tejidos; (4) preservación completa de el filtrum en labio leporino bilateral; (5) el uso de colgajos e osteoplasticos en la reparación de la boveda palatina: (6) obteniendo la reparación mayor posible, la menor retracción cicatricial, y la menor interfe-

rencia con la acción muscular para asegurar la mejor calidad en la voz; (7) ejersicio de lenguaje en muchos casos, si un maestro experto esta al ancance.

RIASSUNTO

Metodi preferiti nel riparo del labbro leporino e della fessura della volta palatina

Si descrivono i metodi, che, in 27 anni, hanno prodotto i migliori risultati funzionali e cosmetici nel riparo del labro leporino e la fessura della volta palatina. Si consigliano i seguenti: (1) riparo al piu presto possibile dei difetti del labbro; (2) uso di linee d'incisione semplici invece di disegni geometrici conplicati; (3) approssimazioni anatomiche accurate, con il minimo trauma possibile ai tessuti; (4) preservazione dell'intiero filtro nel labbro leporino bilaterale; (5) l'uso di lembi osteoplastici nel riparo di fessure palatine; (6) ottenere la piu grande lunghezza possibile nel palato, minima contrazione della cicatrice, ed il minimo impedimento con l'azione dei muscoli per assicurare la migliore qualita di voce; (7) in molti casi, esercizio della favella se si puo trovare un insegnante adequatemente preparato.

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H. E. Jordan of the University of Virginia was elected president of the American Microscopical Society at Columbus on December 28. **Raymond J. Pool,** University of Nebraska, was chosen first vice-president; **Ruth Marshall,** Rockford College, Illinois, second vice-president; **J. E. Ackert,** Kansas State College, secretary (to serve three years); and **Asa C. Chandler,** Rice Institute, member of the Executive Committee (to serve three years).

CERTIFICATES OF MERIT

Certificates of merit for the best scientific exhibits at the Fifth Annual Assembly of the U. S. Chapter of the International College of Surgeons held February 11-14 at Venice, Florida, were awarded to **Dr. Dewell Gann,** Little Rock, Ark., **Dr. Morton I. Berson** and **Dr. Mortimer M. Kopp,** both of New York City

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THE NEXT INTERNATIONAL ASSEMBLY OF THE INTERNATIONAL COLLEGE OF SURGEONS WILL BE HELD IN MEXICO CITY, MEXICO AUGUST 10-14, 1941.

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HAVE YOU PAID YOUR DUES? THESE SHOULD BE REMITTED TO DR. BENJAMIN I. GOLDEN, DAVIS MEMORIAL HOSPITAL, ELKINS, WEST VIRGINIA.

EFFECT OF TRANSPLANTS FROM THE RENAL PELVIS ON THE HEALING OF DEFECTS OF BONE

EGIDIO TOSATTI, M.D.
From the Surgical Clinic of Prof. R. Paolucci, Royal University of Rome
ROME, ITALY

DURING the last decade many workers have published the results of their experiments on the heteroplastic formation of bone following the transplantation of epithelium from the urinary tract. Clinical observations have led to the conclusion that the epithelium of the human urinary tract does not behave differently from that of certain animals (dogs, rabbits) as regards the ability to produce heteroplastic bone formations (Huggins, Lozzi, Tosatti[1]).

Heteroplastic ossification from autotransplantation of epithelium of the urinary tract has been observed at various sites: subcutaneous tissue of the ear, of the abdomen, of the head, in striped and unstriped muscles, aponeurotic sheaths, synovial membranes, peritoneum, brain, parotid gland and, recently, also in the liver and spleen (Tosatti[2]), in both of which results had previously been constantly negative.

RESULTS OF OTHER WORKERS

Recently it has been proved that not only auto- but also homotransplantation can give positive results with heteroplastic ossifications (Tosatti[1]) despite what had been asserted previously (Löwy and Bertrand, etc.). The practical importance of such results cannot be overlooked.

In 1934 two American surgeons, Copher and Key, first produced the healing of extensive defects of bone substance, experimentally produced in the ulna of a dog, by means of an autotransplantation of mucous membrane of the bladder. In the following years, Leriche and Lucinesco in France and Carone, Paggi and Mastrosimone in Italy carried out a series of experiments on autotransplantation of mucous membrane of the bladder. Their results, on the whole, confirm those of the American investigators.

With the same method Mastrosimone and Bezza recently obtained the heteroplastic formation of bone even on the inner surface of defects created in a dog's skull.

However, it was still doubtful whether ossification between the two ends of resected ulna was due not to the influence exercised by the transplanted urinary bladder epithelium, but rather to an attempt at repair caused by the presence of the periosteum (in the space corresponding to the resected bone fragment). Wishing to eliminate such a doubt, Copher recently resumed his experiments with a series of researches which differed from his previous ones conducted in collaboration with Key in the following points: (1) transplantation of the urinary bladder was performed only when, 14 to 16 weeks after the subperiosteal resection of the ulna, roentgenologic examination showed that the periosteum alone was unable to produce any evident bridging between the two ends of the resected ulna; (2) experiments were carried out on a group of animals in which the fragments of the ulna had been removed together with the periosteum. From these researches Copher concluded that the presence of the periosteum alone is not responsible for the healing of the bone defects in the ulna (ranging in length from 2 to 5 cm.) produced by subperiosteal resection, and that, when the periosteum is removed along with the fragments of the ulna, the union caused by action of the bladder epithelium is not nearly so solid as when only subperiosteal resection is performed. (See also Leriche[8], 1939.)

AUTHOR'S EXPERIMENTS

In the above experiments only autotransplantations of epithelium of the urinary bladder have been done.

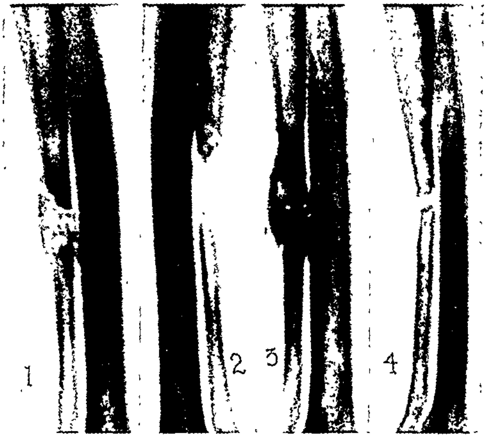


Fig. 1. Dog No. 3: Roentgenogram of right ulna (in which transplantation of renal pelvis has been done) three months after intervention. No sign of atrophy between the two ends; formation of a notable bony mass (with cystic cavities) not yet solidly uniting the two ends. Fig. 2 Dog. No. 3: Roentgenogram of left ulna (control) seven months after intervention. Decrease in diameter, rarefaction, atrophy of the ends, lack of ossification between the two ends. Fig. 3. Dog. No. 3: Roentgenogram of right ulna (with transplantation of pelvis seven months after intervention). Still no sign of atrophy between the ends; formation of an oval mass, thicker than in Fig. 1 (still of cystic aspect); this mass unites the two ends solidly. Ossification of the interosseus membrane. Fig. 4. Control Roentgenogram of right ulna seven months after the subperiosteol resection of a bone fragment 1 cm. long.

In certain researches carried out last year I proved that auto- and homotransplants of urinary epithelium can induce the heteroplastic formation of bone, and that with the transplantation of the renal pelvis this formation can be obtained also in the liver and spleen, in both of which previous attempts had been unsuccessful.

With a series of researches begun this year I shall attempt to determine whether: (1) implanted renal pelvis can be utilized to bridge defects of bone in a dog's ulna, produced by subperiosteal resection; (2) the presence of any tissue other than the epithelium of the urinary tract is capable of inducing ossification between the two ends of a bone subperiosteally resected (this control, hitherto untested, is obviously of the greatest importance); (3) homotransplants, as well as autotransplants, are capable of giving positive results.

In this paper I am reporting only the results arrived at in the nd sec part of my researches: wh ossification of the b ca produced by means of autotransplants of the renal pelvis.

For this study I used four dogs weighing respectively 12,100, 14,500, 17,200 and 17,500 kilograms.

TECHNIC. Chloroform anesthesia was given. The diaphyses of both ulnas were exposed and a bony fragment 3 to 4 cm. in length was removed subperiosteally from each (Leriche, 1939). The wounds were covered with gauze pads. The left kidney was then removed and the lumbar wound also covered with gauze. From the removed kidney a portion of pelvis 3 to 4 cm. in length and 2 cm. wide was excised. This piece was placed between the ends of the right ulna. In two cases the left ulna was used as a control, and in each of these a piece of renal parenchyma, of the same size as the piece of renal pelvis used in the left ulna, was placed between the ends of the left ulna. In the other controls no transplant was made between the two ends of resected ulna. The muscles and skin of all wounds were sutured, the lumbar wound being closed last.

In all the animals the wounds healed by first intention. Seven months later the animals were all living and had perfect use of the legs which had been operated upon.

ROENTGENOLOGIC EXAMINATION

The roentgenologic examination of the forepaws was repeated several times after intervention (at intervals of 30, 60, 90, 140, 180 and 210 days). From these examinations it was evident that in the control ulnas (in two cases a fragment of renal parenchyma had been transplanted: in the other cases, after subperiosteal resection, no transplant had been done at all) there had occurred a decrease in diameter, rarefaction and atrophy of the ends, with no noticeable attempt at bridging the defect of the bone. In those ulnas with transplanted renal pelvis tissue there was a progressive growth of a thick tubular mass, within which cystic-like areas of various sizes and shapes could be seen, solidly uniting the two bony ends as early as the third to the fifth month after the transplant

The roentgenograms of one of the animals used in the experiment (dog No. 3) show this clearly (figs. 1-3).

Figure 4 shows the roentgenogram of an animal on which (for completely different researches) a simple subperiosteal resection of a small fragment (1 cm.) of the ulna was done. This roentgenogram was made seven months after intervention. Even though the bone defect was quite small, the attempt at repair appears to be absolutely inadequate and cannot be compared to the results obtainable with transplants from the kidney pelvis. According to Leriche[3], it is obvious that, even with small defects of the ulna, repair cannot take place after subperiosteal resection alone.

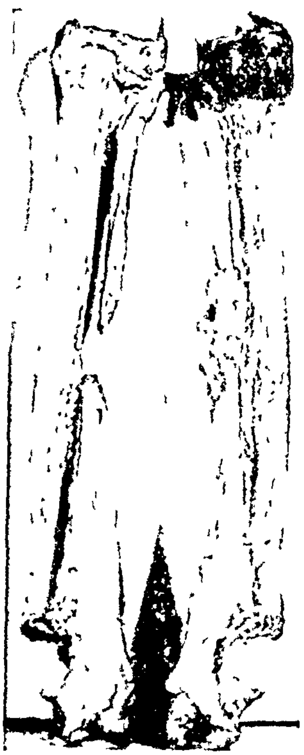


Fig. 5. Dog No. 3 To the left, left ulna (control) showing atrophy of the ends, with no osseous union To the right, right ulna (with transplanted pelvis), showing growth of a narrow, thick tubular mass of bone solidly uniting the ends of the ulna No atrophy of the ends

MACROSCOPIC EXAMINATION

The animals were killed 229 days after intervention. Macroscopic examination of the anatomically prepared ulnas in which transplantation of the kidney pelvis had been performed showed in each animal a thick, oval mass of newly formed bone 3 to 4 cm. long and 2 to 2.5 cm. wide. This mass united solidly the ends exactly where the subperiosteal resection had been made (fig. 5). The new osseous growth showed on the inside numerous cysts of various sizes, lined with pelvis epithelium and containing a dark red fluid The bony mass was not uniformly solid, being much more dense in some places and much thinner in others, where, for instance, one of the cysts was separated only by a thin wall from the tissue surrounding the new bone. The ends appeared normal, contrary to those of the control ulna, which evidently had undergone a process of atrophy. There was no osseous union between the ends of the control ulna.

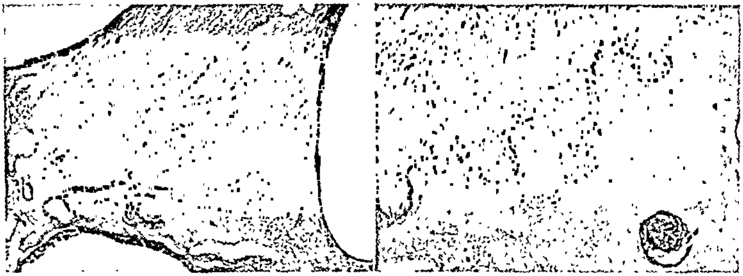


Fig. 6 Left. Intense production of newly formed bone in an area limited by three large cysts lined with the epithelium of the transplanted pelvis In some places, small cavities, filled with typical medullary elements, are seen in the newly formed bone. Fig. 7. Right: Line of demarcation between the newly formed bone and the mature connective tissue surrounding it. A small cavity on the right contains typical medullary elements

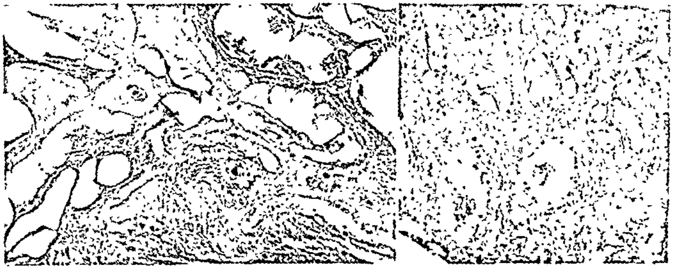
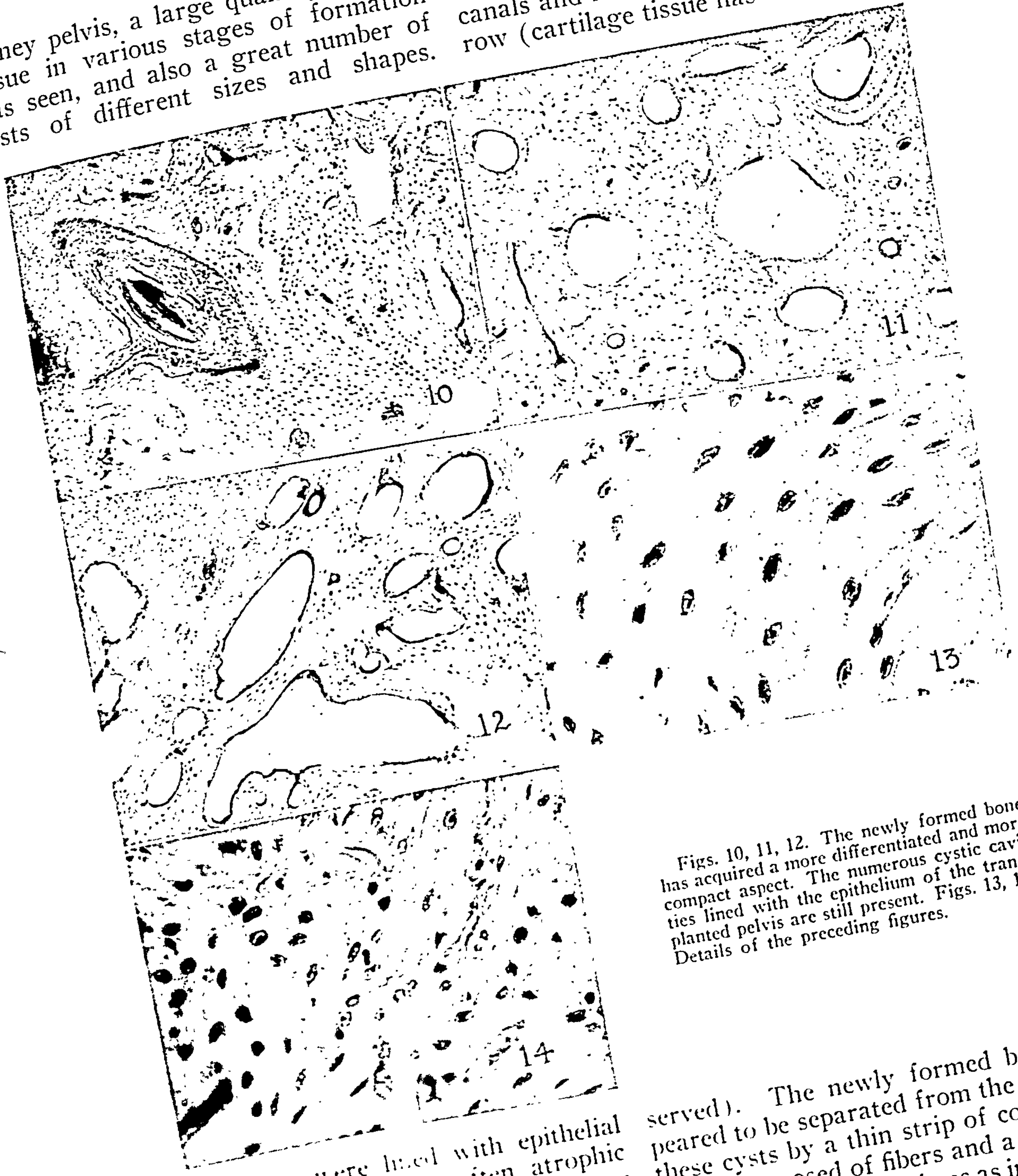


Fig 8 Left · The newly formed bone delimits numerous small canals, some of which contain typical medullary elements Fig. 9 Right · The newly formed bone with small cavities containing typical medullary elements. Cystic cavities lined with epithelium of the pelvis.

MICROSCOPIC EXAMINATIO

In examining the compa
following autotranspla

dney pelvis, a large quantity of bone ssue in various stages of formation vas seen, and also a great number of ysts of different sizes and shapes.



Figs. 10, 11, 12. The newly formed bone has acquired a more differentiated and more compact aspect. The numerous cystic cavities lined with the epithelium of the transplanted pelvis are still present. Figs. 13, 14. Details of the preceding figures.

These cysts were lined with epithelial tissue from the pelvis, often atrophic and with tendencies to undergo more or less marked regressive processes. Some appeared to be either empty or filled with amorphous detritus, some of which was dipped in an albuminous, coagulated

These cysts were surrounded by the bony tissue with its typical Haversian canals and normal-appearing bone marrow (cartilage tissue has never been observed). The newly formed bone peared to be separated from the wa these cysts by a thin strip of conn tissue composed of fibers and a fe of various sizes; sometimes as in th fication following transplants of pelvis in the liver or spleen, al connective tissue sharply separa newly formed bone from the peculiar cystic cavities described above.

The newly formed bone grows independently of the periosteum corresponding to the subperiosteal resection of the ulna. This heteroplastic bone grows from the healthy connective tissue originating in the surrounding tissues (bundles of muscular fibers, tendons, aponeuroses, etc.); it inserts itself between the two ends of the resected ulna, filling solidly the defects produced experimentally in the ulna.

CONCLUSIONS

The heteroplastic ossification provoked by autotransplantation of renal pelvis is capable of healing a bone defect 3 to 4 cm. long produced experimentally in the ulna of a dog by means of subperiosteal resection. When pelvis autotransplantation is performed, the ends of resected ulna do not undergo atrophic processes. The newly formed bone solidly uniting the two ends has a tubular shape similar to that of the normal bone and presents internally characteristic cystic-like cavities lined with epithelium. The complete fusion of the two ends of the ulna takes place as a rule three to five months after intervention. The attempt at repair in the bony substance of the control ulna is absolutely inadequate and does not compare with the ossification produced by transplants of kidney pelvis. Even in the case of inconspicuous subperiosteal resection of bony substance, without transplantation of the pelvis, repair is impossible. The presence of a tissue other than the epithelium of the urinary tract (renal parenchyma) does not provoke ossification between the two ends of the subperiosteally resected ulna.

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RÉSUMÉ

L'autotransplantation du bassin du rein pour rémedier aux pertes d'os

Des expériments conduit sur quatre chiens, l'auteur conclut que l'autotransplantation du bassin du rein entraîne la guérison des pertes d'os. Les expériments intéressèrent le cubitus. La présence de tissu autre que l'épithélium du tractus urinaire n'est pas capable de provoquer l'ossification entre les deux bouts d'un os réséqué.

ZUSAMMENFASSUNG

Der Effekt einer Autotransplantation des Nierenbeckens auf die Heilung von Knockendefekten

Aus Versuchen, ausgeführt an 4 Hunden wird die Schlussfolgerung gezogen dass eine Autotransplantation des Nierenbeckens im stande ist einen 3 bis 4 cm. langen experimentell erzeugten Knockendefekt in der Ulna eines Hundes zu heilen. Die Anwesenheit eines anderen Gewebes als des Epithels der Harnwege ist nicht imstande eine Ossification zwischen den 2 Enden des resezierten Knochens zu verursachen.

SUMARIO

El efecto de la auto-transplantación de la pelvis renal en la cicatrización de los defectos del hueso

De experimentos hechos en cuatro perros, se llega á la conclusión que la auto-transplantación de la pelvis renal, es capaz de cicatrizar un defecto oseo de tres á cuatro cm. Un procedimiento largo de experimentación producido en cubitos del perro. La presencia de otros tejídos, ademas del epitelium urinario no es capaz de provocar osificación ent[illegible] los dos extremos d[illegible]ado.

RIASSUNTO

L'effetto dell'autotrapianto del bacinetto renale sul difetto di guarigione delle ossa

Da sperimenti fatti su 4 cani, si è arrivati alla conclusione che l'autotrapianto di bacinetto renale è capace di guarire un difetto osseo lungo da 3 a 4 cm., prodotto sperimentalmente sull'ulna di un cane. La presenza di altro tessuto, eccetto l'epitelio del tratto urinario, non è capace di stimolare l'ossificazione tra le due estremità dell'osso resecato.

Obituaries

Prof. Dr. Fritz de Quervain, Berne, Switzerland.

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Dr. Alfred Bielschowsky, of Hanover, New Hampshire, aged 68, died January 6 at the Jewish Hospital, Brooklyn, following an operation for brain tumor. He was director of the Dartmouth Eye Institute and professor of ophthalmology at Dartmouth Medical School and a member of the New England Ophthalmological Society. Before coming to this country, he was professor of ophthalmology at the University of Breslau, Germany, and a member of the faculties of the Universities of Marburg and Leipzig. He was graduated from the Universitat Leipzig Medizinische Fakultät, Saxony, Germany, in 1894.

Prof. Dr. George Lardennois, Paris, France.

—o—

Prof. Aristide Busi, director of the Institute of Medical Radiology, Rome, died recently at the age of 65 years.

—o—

Prof. Alexandre Besredka, chief of the laboratory of the Pasteur Institute, Paris, died February 28 at the age of 70 years.

—o—

It is with sorrow that we record the death of **Dr. William Eugene Mowery**, of Salina, Kansas, born 1884, died March 7, 1940, Fellow of the International College of Surgeons and member of the editorial board of the Journal of the International College of Surgeons.

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EXTRAPLEURAL PNEUMOTHORAX*

MOSES BEHREND, MD., F.A.C.S., F.I.C.S.
PHILADELPHIA

From the Services of the Philadelphia General Hospital and State Sanatorium, Hamburg, Pennsylvania

THE primary object of all operations for tuberculosis of the lungs is the closure of the cavity or cavities located therein. The ultimate aim of all compressive operations is to render the patient permanently sputum negative. Of great assistance in accomplishing this result is the operation of extrapleural pneumothorax. It was first proposed by John B. Murphy in 1898. At that time it received only a mild degree of encouragement. In the past three or four years, however, with the broadened experience of surgeons in this field, the operation of extrapleural pneumothorax has gained considerable impetus. The operation is still under judgment and the time that has elapsed since its re-introduction has not been sufficient for its ultimate evaluation. However, during the last few years much has been learned concerning the applicability of this operation in cases selected properly for operation.

SELECTION OF CASES

In all operations upon the tuberculous it is most important to select the proper procedure suitable for each individual. Upon this important step depends the success or failure of the operation. It has been our experience that the recent case in which intrapleural pneumothorax could not be established, or was incompletely successful, is the type of case in which the operation of extrapleural pneumothorax gives the most satisfactory results. However, the operation is now being used on selected patients who have had pulmonary tuberculosis for several years and in whom an extrapleural thoracoplasty is inadvisable for various reasons.

Extrapleural pneumothorax offers some hope, often in an apparently hopeless situation, to the patient with contralateral spread of tuberculosis, the patient with low vital capacity, the patient with a large basal cavity which would require a most extensive thoracoplasty, the patient with hemorrhage in whom thoracoplasty may be contraindicated because of spread to the contralateral lung, the patient with rather rapidly progressive lesions which are unchecked by more conservative measures and the patient with bilateral disease.

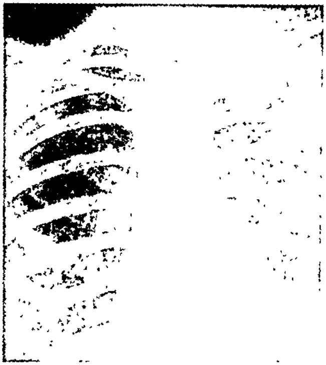

Fig. 1., V M , age 18. Extensive disease of left lung. Sick about a year before operation. An early case

We consider as ideal for extrapleural thoracoplasty the patient with a comparatively early and extensive tuberculosis involvement, with or without evidence of some contralateral involvement showing cavitation and localized infiltration abo [illegible]. In a few cases we have found that it is impossible to maintain to its original full extent the size of the pneumothorax pocket, because of a tendency of the lung gradually to reexpand. While this expansion has never been complete, it may be sufficiently great to allow cavities, closed by the operation, to reopen. In such cases extrapleural thoracoplasty has been performed subsequently. Thus patients who previously were not considered to be fit *subjects for this more permanent* and extensive operation are enabled to have a thoracoplasty. Cases which have shown negative sputum for months following extrapleural pneumothorax and in whom positive sputum has returned with the gradual reexpansion of the partially collapsed lung, may again be rendered sputum negative by a subsequent extrapleural thoracoplasty (figs. 1, 2 and 3). This may require only one stage or at the most two stages, with the resection of six ribs. We have been unwilling to perform the operation in cases in which the size of the cavity exceeds 4 cm., because in such cases there is great danger of necrosis of the wall of the cavity when its attachment to the chest wall is disconnected. Such a complication must inevitably result in infection of the extrapleural space and the formation of a bronchopleural cutaneous fistula.

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*Read at the Fifth Assembly of the International College of Surgeons, V

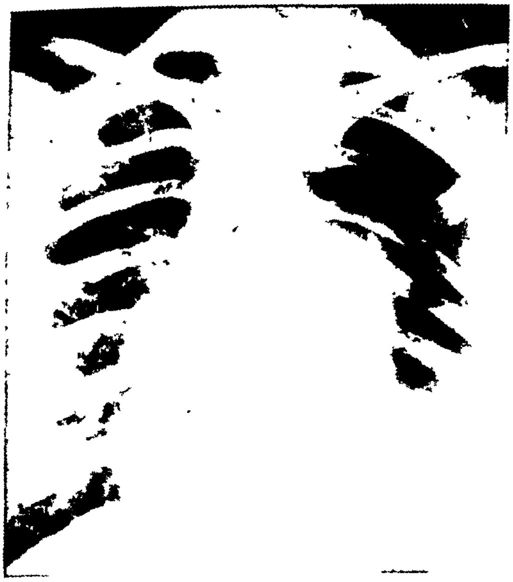

Fig. 2. V.M. Large air space as a result of extrapleural pneumothorax performed August 6, 1938. Negative sputum until March 8, 1939; 10 cm. of fourth rib removed.

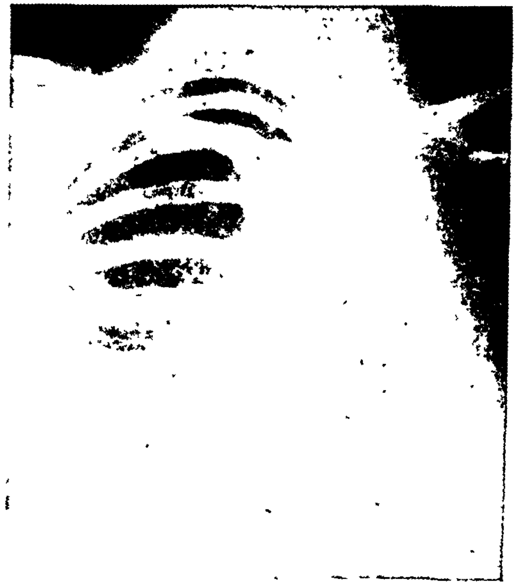

Fig. 3. V.M. Showing two stages of thoracoplasty performed February 21, 1939 and March 28, 1939 for return of positive sputum. Sputum is now negative and disease arrested.

OPERATION

Extrapleural Pneumothorax. The operation consists in removing about 10 cm. of the third or fourth rib anteriorly, posteriorly or laterally after the usual skin incisions are made for a costectomy. For the fastidious individual who wishes to have the scar hidden, a small incision may be made in the axilla. Anteriorly the *incision may be made across the third rib,* or in women, under the breast. The posterior incision may be a paravertebral one. After a piece of rib is removed the intercostal fascia is separated from the parietal pleura. A line of cleavage is found between these two structures after which the lung is separated within this envelope of tissue and pushed down as far as necessary to obtain adequate compression by means of air introduced into the space which has been left. The operation is facilitated with electrically lighted retractors of Overholt or those used in operations on the brain. Any bleeding points requiring ligation can be seen well within the illuminated cavity. The capillary oozing which always results following this operation helps to cause the compression so desirable in these cases (figs. 4 and 5). Air is introduced the evening of the day of operation, or the following day, after which refills are used two or three times a week. The

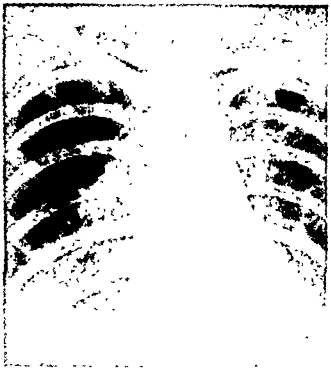

Fig. 4. D.L., age 25. Note small cavity in left lung. A suitable case for extrapleural pneumothorax.

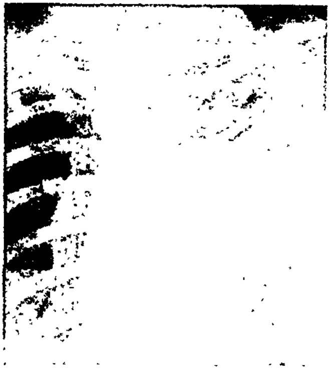

Fig. 5. D.L. One week after operation. Note especially *the fluid level due to extravasated* blood *which is desirable for compression of lung.* Air pocket above. About 10 cm. of fourth rib has been removed.

extrapleural space must always be maintained to keep the maximum effect of compression following the injection of air. Some surgeons introduce salt solution after the operation. We have given up this practice because it seemed to encourage infection.

Oleothorax. If there is any indication that the extrapleural pneumothorax space is being lost as a result of reexpansion of the collapsed lung, as an alternative to operation of superimposed extrapleural thoracoplasty or if for any reason thoracoplasty is contraindicated, oleothorax may be employed. It is usually not necessary to consider such a procedure until six weeks have elapsed from the time of the operation of extrapleural pneumothorax. Sterile mineral oil may be used and should be injected gradually in amounts beginning with 5 cc., the quantity being increased gradually when evidence is established that no outward reaction to the oil will occur

EFFECTS OF EXTRAPLEURAL PNEUMOTHORAX

The type of case which we consider to be desirable for the performance of extrapleural pneumothorax has already been described Most of our cases have been unsuitable for the operation of thoracoplasty because they were comparatively recent and progressive cases, showing in addition, higher temperature ranges and more rapid pulse rate than is desirable when extrapleural thoracoplasty is contemplated. These cases have all, of course, been positive for tubercle bacilli and many of them had an excessive amount of cough. The operation of extrapleural pneumothorax does not carry with it the immediate operative risk of an extrapleural thoracoplasty and in most cases it is more readily tolerated than the latter operation. Extrapleural thoracoplasty may render the sputum negative, help the patient to gain weight, diminish the cough and generally improve the patient's condition. It should not, however, be considered lightly, and we still feel that extrapleural thoracoplasty is a more desirable type of operation when it can be performed. The danger of infection is much greater following extrapleural pneumothorax as is also the danger of production of a bronchopleural cutaneous fistula. When either of these complications occurs, the prognosis immediately becomes grave. Of this more will be said later.

In three of the twenty-five cases in which we have performed extrapleural pneumothorax, subsequent thoracoplasty has been done. All of these cases are apparently arrested and sputum negative.

COMPLICATIONS

Hemorrhage. In the separation of the extrapleural fascia there is always capillary oozing. If the separation is made carefully, very rarely will there be bleeding from larger vessels. With the aid of electrically lighted retractors all blood vessels should be caught and tied. A little oozing is beneficial in that the accumulated blood causes compression of the lung.

Infections. The greatest danger following the operation of extrapleural pneumothorax is infection. The blood which has accumulated as a result of the oozing may become infected, or the cavity in the lung, if a thin walled one, may rupture. If infection occurs, the temperature rises and the patients usually become quite sick. When pus accumulates it must be drained. While the space may be lost to a certain degree, sufficient collapse may persist to maintain a negative sputum. Convalescence in infected cases is very much prolonged because, when drainage is instituted, the discharging sinus persists for months.

RESULTS

Since June, 1938, twenty-five cases have been operated upon. Of these six patients (24 percent) died. Four of these died as a result of infection. Two died of hemoptysis. Thoracoplasty was performed on three patients following the primary procedure. The sputum is negative in eleven (44 per cent). In eight cases (32 per cent) the sputum is still positive and further surgery is contemplated.

In the four cases in which infection was indirectly responsible for death, it was necessary to reopen the wound to give vent to a large quantity of pus which had accumulated. One patient was walking around the sanatorium when she was suddenly seized with hemoptysis and died within two hours after its occurrence. Another patient, a rather poor risk, also died of hemoptysis ten days after the operation. One or two stages were necessary to render the patient's sputum negative. It must be borne in mind, therefore, that extrapleural pneumothorax is very often a preliminary operation which contributes to improvement of the patient's condition, as a result of which there is a diminution of cough, gain in weight and the production of negative sputum Therefore, if the sputum becomes positive again and if there is any doubt that the sputum will not remain negative, thoracoplasty should unhesitatingly be advised.

SUMMARY

1. Extrapleural thoracoplasty is reviewed as a method of eradicating tuberculosis cavities in the lungs.
2. The most important consideration is the selection of the proper case for this operation.
3. The technic of operation is described.
4. The most important complications following the operation are hemorrhage and infection.
5. Twenty-five cases have been operated upon, of which six died, eleven have negative sputum and eight still have positive sputum.

DISCUSSION

Dr. O. C. Schlack (Cook County Tuberculosis Hospital, Oak Forest, Ill.): There is one more point I wish to bring out, and that is maintaining the collapse. We have had great difficulty in maintaining the collapse in the early stages of this operation. At the present time, immediately after the operation, we fill the cavity with normal salt solution, we repeat this six hours later, and then every four hours for the next three days. On the second day the normal salt solution is replaced in the cavity, one half normal salt, the other half air. I believe that if this procedure is followed, we shall maintain a better collapse than we will by just placing air in the cavity, and undoubtedly Dr. Behrend will bring this out.

Dr. W. R. Lovelace (Albuquerque, N. M.): Dr. Behrend did not say anything about phrenectomies in these cases. I am wondering if he believes in phrenectomy before the thoracoplasty is done.

Dr. M. M. Simon (Poughkeepsie, N. Y.): I should like to ask Dr. Behrend what anesthetic he uses, and how often the pleura is entered during the process.

Dr. Behrend: With reference to the injection of salt solution, we have used infusions of salt solution in the pleural cavity following this operation, but believing that it conduces to infection, we have abandoned its use after extrapleural pneumothorax. We perform phreniclasis (temporary paralysis of the diaphragm) by means of crushing the phrenic nerve, in some cases, but do not practice it routinely. Its routine performance is not advisable because in many cases the to and fro movement of the diaphragm is desirable instead of inactivity. In the Philadelphia General Hospital and also in the Sanitarium at Hamburg cyclopropane anesthesia is used. We also use at times local anesthesia, with or without cyclopropane. Except in cases where an intrapleural pneumothorax has been done, we have never entered the pleural cavity in a simple case of extrapleural pneumothorax. I wish to add that in cases of infection, no doubt the cavity in the lung perforated and was the cause of the infection. This is one of the most serious complications following extrapleural pneumothorax.

RÉSUMÉ

Le pneumothorax extrapleural

L'auteur discute la thoracoplastie extrapleurale comme moyen d'oblitérer les cavités tuberculeuses pulmonaires. Il importe de faire un choix judicieux des cas. La technique opératoire est décrite. Les principales complications sont l'hemorrhagie et l'infection. Vingt-cinq cas furent opérés. Il y eut 6 décès; onze à l'heure actuelle ont des crachats négatifs; huits ont des crachats positifs.

ZUSAMMENFASSUNG

Extrapleuraler Pneumothorax

Eine Übersicht über die extrapleurale Thorakoplastik als Methode für die Kollabierung tuberkulöser Kavernen in der Lunge ist angeführt. Das Wichtigste ist die Auswahl geeigneter Fälle für diese Operation. Die Operationstechnik wird beschrieben. Die wichtigsten Komplikationen nach der Operation sind Blutung und Infektion. 25 Fälle wurden operiert, 6 davon starben, 11 hatten negatives Sputum und 8 haben noch immer positives Sputum.

SUMARIO

Pneumotorax extrapleural

Toracoplastia extrapleural es revisada como un método de irradicación de cavidades tuberculosas de los pulmones. La consideración mas importante es la selección de el caso propio para esa operación. La técnica operatoria es descrita. Las complicaciones mas importantes siguientes de la operación son hemorragias é infección. Veintecinco casos han sido operados, de los cual murieron seis, once tienes esputos negativos y ocho aun tienen esputos positivos.

RIASSUNTO

Pneumotorace extrapleurale

Si descrive la toracoplastia extrapleurale come metodo di sradicare le cavità tubercolari dei polmoni. La più importante considerazione è la selezione dei casi adatti per l'operazione. Si descrive la tecnica. Le piu importanti complicazioni dopo l'operazione sono l'emorragia e l'infezione. Venticinque casi sono stati sottoposti ad operazione: di questi sei sono morti, undici hanno espettorato negativo e otto hanno espettorato ancora positivo.

THE MANAGEMENT OF ACUTE PANCREATIC NECROSIS *

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IN the last few years there has been a change in the treatment of the disease known as acute hemorrhagic pancreatitis or acute pancreatic necrosis. Radical surgery is no longer performed as soon as a diagnosis is made. Instead, operative intervention is delayed until the primary shock has disappeared and, if possible, until the patient has fully recovered and careful studies of his case have been made. Frequently, if no biliary disease or residual pancreatic pathology is present, no surgery at all is done. The reports of results obtained with this method of treatment are beginning to show a lower mortality ranging from 50 to as low as 7.5 per cent. This lower mortality is due partly to the fact that patients are not being operated upon during shock or seriously lowered resistance and partly to the fact that greater experience and better methods of diagnosis are bringing to light many mild cases, in most of which recovery occurs. Probably nowhere in the field of surgery is a finer type of surgical judgment required than in the diagnosis and treatment of acute pancreatic necrosis. Indiscriminate and ill-timed surgery leads inevitably to disastrous results.

PATHOLOGY

The pathology of pancreatic necrosis is characterized by certain features, which are directly related to the physiology of the pancreas. They are pancreatic necrosis, due to the action of trypsin, and fat necrosis, the result of the action of lipase. The trypsin by digesting the blood vessel walls adds hemorrhage to the pathologic picture. The secretions from the injured pancreas escape and, mixing with the exudates from the irritated peritoneum, produce the brownish or bloody fluid so typical of the early hours of this disease. Collections of dead pancreatic tissue, blood and necrotic fat, too large to be absorbed, form pancreatic cysts, and when these become infected, pancreatic abscesses develop. Bacteria present in the necrotic pancreatic ducts or escaping through the gangrenous walls of the bowels may produce peritonitis. The whole unusual pathologic picture is due to the escape from the pancreatic ducts of these two ferments, trypsin and lipase. Of these two ferments, trypsin is the more destructive.

Previous to the onset of the necrosis, due to the escape of the pancreatic ferments, there appears a characteristic edema of the pancreas similar to that which is produced in experimental pancreatitis by the injection of irritating substances into the main duct of the organ. This edema must also be considered as a typical pathologic feature of the disease. The above facts are well known, but the problem of acute pancreatic necrosis is, why do these powerful ferments leave their normal habitat and cause such an unusual pathologic picture?

ETIOLOGY AND PATHOGENESIS

The clinical causes usually given as resulting in pancreatic necrosis are trauma, accidental or the result of surgery; hemorrhage into the pancreas from vascular disease or blood dyscra-

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*Read at the Fifth Assembly of the United States Chapter of the International College of Surgeons, Venice, Florida, February 13, 1940.

sia; injury to the pancreas by a penetrating peptic ulcer; direct extension of infection from the liver ducts to the pancreatic ducts and pancreas; lymphatic extension of infection to the gland from the gall-bladder and liver ducts; infection from acute systemic diseases; round worm obstruction of the pancreatic duct; and last and most discussed, the theory of the reflux of bile or duodenal contents into the pancreatic ducts. Thus many causes of pancreatic necrosis have been given and each of them at times may possibly be responsible for the disease. Many clinical cases occur, however, in which none of these known causes are present. There is therefore a need of the knowledge of the primary underlying factor, common to all the above causes, which will explain their action.

Obstruction. The work of Rich and Duff[1], published in 1936, has brought out several new principles in the etiology and pathology of pancreatic necrosis. They believe that the common primary cause is a partial obstruction at some point in the pancreatic ducts, behind which, at the time of active digestion, the pancreatic secretions collect under sufficient pressure to rupture the finer ducts or acini and allow the secretions of the gland to escape into the pancreas or surrounding tissues. These writers have shown that this secretion, when it escapes at the highest point in the digestion of a full meal, contains not only active lipase but active trypsin without, however, the help of any activating agent from the intestines or elsewhere. Of course trypsinogen may escape at the same time and become activated by tissue juices. Rich and Duff have further demonstrated that the tryptic ferment, by necrosing the blood vessels, produces a constant and specific lesion in the walls of the arteries and veins, which causes them to rupture and starts the bleeding, from which this disease has derived its name of hemorrhagic pancreatitis. They have also found that the amount of active tryptic ferment present in the pancreatic juice varies greatly, being large at the height of digestion of a full meal and low or absent during the fasting period. It is evident that if the escaping pancreatic juice contains large amounts of trypsin and erodes large blood vessels in the substance of the gland, the hemorrhage and destruction will be great, but if it escapes at the periphery of the organ and comes in contact with small vessels or only with fat, the hemorrhage and damage may be small. Moreover, if the rupture of the duct occurs when the pancreatic juice contains little or no trypsin, fat necrosis only will occur. The well known great variation in the extent and seriousness of clinical cases of pancreatic necrosis would seem to depend upon the amount of the tryptic ferment present in the escaping pancreatic juice and upon the anatomic point at which it escapes.

Once the tryptic ferment is set free, the destructive process progresses automatically. In the pancreas, the walls of the blood vessel are eroded and blood escapes into the substance of the gland, tearing it apart and destroying its nutrition, thus opening up more of the duct system and setting free more of the ferments to continue the disintegration of the gland and the surrounding structures. Thrombosis of the blood vessels also plays a part in the destruction of the nutrition of the gland.

There are many ways, in clinical experience, by which the pancreatic ducts may be obstructed and this disease initiated. The obstruction may be caused by a stone or a round worm within the duct; by a stricture, an adenoma or an inflammation of the duct walls; by a stone, a stricture or a muscle spasm at the lower end of the common duct; and probably by infection and swelling of the pancreas. Rich and Duff have shown that there is commonly present, in the smaller pancreatic ducts, a metaplasia or thickening of the duct epithelium which causes a partial obstruction of the ducts with a dilation and thinning of their walls, and that such dilated ducts rupture easily under increased pressure. They found an obstruction of this kind present in the routine microscopic sections in 18.6 per cent of 150 consecutive autopsies performed on persons over 25 years of age and in the routine microscopic sections in 13 of 24 cases of hemorrhagic pancreatitis. They state that it is their "belief that this form of duct obstruction leading to acinar rupture and escape of secretions plays an important rôle in the pathogenesis of many cases of hemorrhagic pancreatitis, though any of the numerous causes of duct obstruction may, of course, lead to the same result."

It is evident that any trauma, accidental or surgical, which might tear the pancreas, or a hemorrhage into the organ due to vascular disease or blood dyscrasia, which might cause a disruption and disintegration of the gland tissue, could set free pancreatic ferments and initiate a case of acute pancreatic necrosis. There is no doubt, moreover, that when a common channel from the common bile duct to the main pancreatic duct has been formed by a stone or a muscle spasm at the ampulla of Vater, bile may, under certain conditions of increased pressure, be injected into the pancreatic ducts with enough force to rupture the smaller pancreatic ducts or acini and set free pancreatic ferments. This seems a much better explanation of how the reflux of bile into the pancreatic ducts might cause pancreatitis than the older one that infected bile, rich in bile salts, starts the trouble by irritating the gland or by activating the pancreatic juice within its ducts. This latter theory is especially lacking in force since we now know that active trypsin and bile are commonly present within the pancreatic ducts. It is probable, however, that the reflux of bile into the pancreas, through a common channel formed by the common bile duct and the pancreatic duct, is only a rare cause of pancreatic necrosis.

The obstruction theory of pancreatic necrosis may, with interest, be compared with obstructive jaundice. In the latter condition we know that the pressure of bile in the smaller bile duct radicles, due entirely to the secretory pressure of the liver cells, causes the ducts to rupture and the bile to escape into the organ without any very serious immediate damage to the liver tissue. If this bile escaping between the liver lobules were rich in active lipase and trypsin, as is the juice from the ruptured pancreatic ducts, one can picture what serious damage would be done to the liver with the coagulation of fat and the erosion of the rich network of blood vessels.

Infection. The rôle of infection in the causation of acute pancreatic necrosis is less clear. Biliary disease is reported as associated with pancreatitis in from 20 to 95 per cent of the published cases. Surgeons generally are convinced that disease of the gall bladder and liver ducts is in some way responsible for their cases of pancreatitis because of the frequency with which they find the two associated, and also because of the fairly common association of pancreatic necrosis and acute biliary disease. However, in a good proportion of the cases of pancreatitis no biliary disease is present and when present it frequently shows no signs of active infection. How biliary infection, as distinct from biliary obstruction, can cause pancreatic necrosis is difficult to explain unless the infection reaches the pancreas, causing edema and inflammation with obstruction of the ducts. There is not much real proof that this is the case. It is to be hoped that future studies of the association of biliary disease with acute pancreatic necrosis will explain their relation

Pancreatic Edema. Elman[2] and several other authors[3,4] have described an acute lesion of the pancreas, with edema and induration of the organ and evidence of acute inflammation, as shown by fever and infiltration of the interstitial tissues with polymorphonuclear leucocytes, which may be associated with infection from the bile ducts or elsewhere. Some cases show small areas of fat necrosis but no pancreatic necrosis, are acute and severe but tend to subside more promptly than do cases with pancreatic necrosis. The physical [illegible] luding a [illegible] Many, but not all, of the cases are associated with biliary disease. Obstruction of the pancreatic ducts, reflux of bile into the pancreas and inflammation are given as the pathogenesis.

This condition is said to be much more common than pancreatic necrosis and to represent either a mild form of the latter disease or a distinct entity. It is known as acute interstitial pancreatitis or pancreatic edema. It is undoubtedly a good thing that this mild form of pancreatitis has been emphasized; however, edema of the pancreas is a well known early feature of experimental pancreatitis produced by the injection of irritating substances into the pancreatic ducts, a procedure which produces pressure in the ducts similar to that in obstruction. It would seem, therefore, that all the features of pancreatic edema or acute interstitial pancreatitis might be explained on the basis that it is an early form of a pathologic condition of the pancreas with the same etiology as pancreatic necrosis but in which obstruction of the pancreatic ducts has caused only edema of the gland with some irritation of the interstitial tissue and occasional areas of fat necrosis. The presence of fat necrosis probably indicates acinar rupture with the escape of lipase but no active trypsin. Only the accidental absence of active trypsin would seem to prevent these cases of pancreatic edema from being true cases of pancreatic necrosis. Probably the whole clinical picture of this disease is due to obstruction of the pancreatic duct in which pancreatic edema, hemorrhagic pancreatitis and pancreatic necrosis simply represent different pathologic phases. Of course, cases with edema only should not be called pancreatic necrosis. Finally, it must be emphasized that many mild cases result in prompt recovery in which fat necrosis, hemorrhage and pancreatic necrosis are present in a considerable amount.

Shock in Pancreatic Necrosis. The cause of the profound shock, seen at the onset of pancreatic necrosis, has not been fully explained. It is probably largely the result of the massive and sudden injury to the vital vascular and nerve tissues which surround the pancreas. It has been suggested that it may be due to the absorption of split proteins as the result of tissue digestion Recently Schmieden[5] has attributed the circulatory collapse to the dilatation of the blood vessels caused by the entrance into the circulation of the liberated trypsin.

DIAGNOSIS

The diagnosis of pancreatic necrosis is not easy. It is not, however, as impossible as it was formerly considered to be. The difficulty has been that the individual physician sees so few cases that he is reluctant to depend upon the rather striking and typical clinical picture when it presents itself. The impossibility of making an absolutely certain diagnosis of this disease, in some cases, is not necessarily a justifiable reason for immediate exploratory laparotomy. If a case seriously suggests upper abdominal perforation, or very acute cholecystitis, and a differential diagnosis cannot be made, operation may indeed be indicated after the circulatory collapse has passed away. However, if such a case, although in [illegible] sh[illegible] shows only moderate abdominal symptoms which are not immediately alarming, operation should certainly not be done and the progress of the case should be watched.

The differential diagnosis of pancreatic necrosis must exclude many acute conditions of the chest and upper abdomen, most important of which are *acute biliary disease, perforation of the stomach, duodenum or gall-bladder, acute intestinal obstruction, ruptured appendix with peritonitis, acute coronary disease, mesenteric thrombosis* and *pneumonia* with shock and severe abdominal symptoms.

The clinical picture and the course of this disease vary greatly. Some cases, showing typical, severe, initial symptoms may progress rapidly downward to a fatal termination, while others with an equally severe onset may recover in a few days. Another group of cases do not show the initial shock and extremely severe pain and can be distinguished from *acute gall-bladder disease* only by the left-sided pain and tenderness and a high blood diastase. The tenderness in pancreatic necrosis is in both sides of the epigastrium, but it is more to the left than in most cases of cholecystitis. In severe cases of acute cholecystitis the tenderness will extend well to the left, but it will also extend farther down on the right side than is usual in pancreatitis. Secretions from a diseased pancreas may, of course, escape from the lesser peritoneal cavity through the foramen of Winslow and flow downward in the right lateral peritoneal gutter at the outer side of the ascending colon and cecum to the pelvis, causing tenderness in the lower right side of the abdomen and in the pelvis. Such cases are often diagnosed as *appendicitis*.

The clinical history and physical findings in typical cases of *hemorrhagic pancreatitis* are quite striking and characteristic. The pain in the epigastrium and back is usually instantaneous in onset, stabbing in character, and very severe. The patient is in shock, is pale, cold and sweating, and has low blood pressure, anuria and persistent vomiting. He may show a dusky cyanosis or more rarely a pink flush over his body with a deep reddish purple in his lips. Frequently he is mentally confused and too tired to answer questions. His temperature is subnormal; his white blood count, blood sugar and blood diastase are high. Jaundice and glycosuria are occasionally present. The early abdominal symptoms are, as a rule, mild in proportion to the severe general picture, but they may later become more severe. A mass may appear in the epigastrium in two or three days or later.

An x-ray examination is at times of help by showing a widening of the duodenal circle or a displacement of the transverse colon or greater curvature of the stomach. It may be of negative aid by revealing free air in the peritoneal cavity, pneumonia or an intestinal obstruction.

A considerable increase in the starch splitting ferment, diastase, above that normally found in the blood and urine is now quite generally recognized as a valuable aid in the diagnosis of the condition. Tests for it are said to have more than doubled the percentage of correct diagnoses. This increase of the diastase is present when the pancreatic ducts are acutely obstructed or when acute damage has occurred in the gland itself. The diastase is probably absorbed from the obstructed pancreatic ducts or injured tissues just as bile is taken up by the blood in obstructive jaundice. It rises rapidly in the blood in the first six to eight hours of the disease and usually returns to normal in 36 to 72 hours. The ferment is increased in the blood also in acute cholecystitis, common duct obstruction, peptic ulcer penetrating the pancreas and in acute inflammation or injury to the pancreas.

The test for diastase consists in determining the amount of sugar produced by the hydrolysis of a starch solution by the diastase in the patient's blood. The test is not too complicated but the laboratory worker does need to have routine experience with it in order to give accurate reports when needed. This experience can be acquired and an occasional unexpected case of pancreatitis discovered if the test is requested, not only when pancreatitis is suspected, but in cases of acute cholecystitis and common duct obstruction. A high diastase in the blood indicates the probable existence of an acute lesion in the pancreas but not the nature or the extent of the process. A normal blood diastase estimated at the proper time is good evidence against acute pancreatic disease.

Another test used in the diagnosis of hemorrhagic pancreatitis is the estimation of the serum lipase. It consists in measuring the effect of the hydrolysis of olive oil by the lipase in the patient's serum. It is a rather complicated test and has not come into common use. According to Comfort[6], who has done considerable work with it, it is a valuable test and has some advantages over the diastase estimation.

It should be emphasized that these tests should not be taken independently but should be given consideration only in the presence of the signs and symptoms of acute upper abdominal disease.

TREATMENT

The treatment of acute pancreatic necrosis may be divided into three phases. The first deals with the disease in the early days of the acute illness; the second, with the later results of the process such as pancreatic abscesses and cysts; and the third, with the prevention of future attacks.

The initial pain of the acute illness must, of course, be relieved with morphine and other sedatives. Blood transfusions and intravenous saline with glucose are useful for shock and vascular collapse. The glucose can be covered by insulin if it is feared that it will increase the secretion and the escape of the pancreatic ferments. Every effort should be made to overcome the low blood pressure with cardiac and vascular stimulants. Vasoconstrictors may be helpful. In case number five of this series the blood pressure promptly returned to normal and the anuria disappeared with the use of small doses of ephedrin on the second day of the illness. Gastric and intestinal distension may be relieved by continuous duodenal drainage. Attempts also have been made to reduce the secretion of pancreatic ferments by withholding food and by the use of atropine in the first few days of the illness.

The controversy regarding the surgical treatment of acute pancreatitis has been concerned with its management in the early days of the disease. There has been much confusion because, at the onset of the trouble, the shock which accompanies many of the milder cases may appear to be as severe as that which is manifested by those which later prove to be very serious. Moreover, it is now realized that the milder cases of pancreatitis are much more common than the severe ones but that they tend to recover promptly in a few days, while the serious cases may rapidly become worse. Surgery, therefore, if applied at the onset to all cases with severe initial symptoms, will result in many unnecessary operations and will increase the mortality of not only the severe cases but also the milder ones. It would seem rational, therefore, to delay surgery in all cases until the initial shock or vascular collapse has disappeared. It will then be found that the milder cases, which make up the large majority, will recover without surgery, while the small minority of serious cases which fail to improve but show increasing local and general symptoms can be treated by surgical or nonsurgical means, according to the judgment of the surgeon in each individual case. Some of the severe cases will end fatally without recovering from shock; however, such cases will probably not be saved by surgical intervention at this early period.

The general objectives in the operative treatment of acute pancreatic necrosis have been to stop the progress of the disease and to drain away toxic and infectious materials from the abdomen. The surgical procedures used have been decompression of the common bile duct and drainage of the lesser peritoneal cavity after free incision of the pancreas. Of these, only drainage of the pancreas remains unchallenged. The disease in the gall-bladder and common duct is now not so commonly treated at this early stage unless an acute process in these organs accompanies the pancreatitis. Decompression of the common duct to prevent reflux of bile into the duct of Wirsung is also less commonly used because it is believed that the forcing of bile into the pancreatic ducts is only a very rare cause of pancreatitis. Incision into the pancreas itself to promote drainage is dangerous and useless and has been given up by most surgeons.

The immediate objective of surgery, in these more serious cases, has been to drain the lesser peritoneal cavity and thus remove the free pancreatic ferments and necrotic gland secretions, wall off infection, prevent peritonitis and control hemorrhage. Whether the removal by drainage of the pancreatic ferments and broken down gland substances is possible at this early stage of the disease is questionable, but it is a procedure favored by many surgeons. Hemorrhage from the pancreas is rarely in large amounts and in itself does not justify packing of the lesser peritoneal cavity. Infection develops in the necrotic pancreas on about the third or fourth day of the disease in a certain percentage of the severe cases and, while it usually becomes safely walled off in the lesser peritoneal cavity, yet in some cases it is the evidence of such infection which is the strongest argument for operative intervention. No doubt drainage safely established will frequently control this infection and prevent peritonitis. Such a procedure is, however, not without danger, for the opening of the infected area at this early period may spread the infection and cause peritonitis, and the placing of a large tampon into the lesser cavity may introduce infection into what would otherwise remain a sterile field.

Peritonitis, once well established, is not easily controlled by surgery or any other means and must be treated like any case of generalized peritonitis from any other cause.

Schmieden[5], always an advocate of the surgical treatment of pancreatic necrosis, now says (April, 1939) that the more severe types of the disease are rare while the mild cases are rather common and are often masked by biliary disease. It is his opinion that the symptoms of the disease are due to the absorption of the exudates from the pancreas, especially trypsin. He warns against operating during vascular collapse and against incision of the pancreas and random surgery. He advocates that surgical intervention be limited to drainage of the pancreatic area and to the occasional drainage of the biliary tract if the disease is acute. He operates only in the more serious cases of pancreatitis and in severe upper abdominal cases in which a positive diagnosis cannot be made. He believes, very definitely, that the clinical progress of the disease can often be halted by draining away the pancreatic exudates. He states that in advanced cases of peritonitis drainage should be carried out, although little can be done for the condition.

Among the cases which recover from the primary phase of this disease there will be some with collections of necrotic pancreatic tissue, necrotic fat and blood too large in amount to be absorbed.

Such masses tend to enlarge and to be accompanied by fever, leucocytosis, loss of appetite, vomiting and marked loss of weight. Some cases are infected and drainage becomes imperative, while others go on for months to cyst formation. Simple drainage in these cases will usually lead to ultimate recovery.

However, some of these patients pass into a state of asthenia from infection, vomit persistently and finally die, a result which occasionally follows drainage of infected areas of pancreatic necrosis at an earlier stage of the disease.

Once a patient has recovered from an attack of acute pancreatic necrosis, measures must be taken to prevent a recurrence of the disease. Surgeons generally have been impressed with the frequency with which disease of the biliary tract is associated with this condition. In many cases they do not occur together, and certainly there is no real proof other than clinical experience that biliary disease does cause pancreatitis. However, since the association of these two conditions is so common, it is only reasonable that, after the patient has fully recovered from his attack of pancreatitis and careful studies have been made, any pathology of the biliary tract should be promptly corrected. If no such pathology is found, no operation should be performed; the patient should be kept under careful observation and everything done to improve his general condition. If we accept the theory of Rich and Duff, that obstruction of the smaller pancreatic ducts, by a metaplasia of the duct epithelium, is an important cause of pancreatic necrosis, then in many cases the prophylactic treatment by surgery or any other means will probably be ineffectual.

The prognosis in acute pancreatic necrosis should therefore be guarded, but not pessimistic, for the mortality percentage is decreasing and recurrences are not common.

CASE REPORTS

A series of seven cases seen since February, 1936, are here reported. Six of the patients recovered and one died. The pain was severe in all cases. Three patients were in shock and four were not. Five cases might be considered mild and two were of the severe type. In all seven, operation was delayed until the initial severe symptoms subsided. Six cases showed definite gall-bladder disease and the seventh, evidence of pathology on x-ray examination. Operation for correction of the biliary disease was done in all except three cases. One of these patients, with a pancreatic abscess, died after simple drainage; one had very severe hypertension; and one remains to be operated upon. A diagnosis of pancreatic necrosis was made preoperatively in four out of the seven cases. Of the three cases in which a diagnosis was not made before operation, one patient was seen after operation with the operating surgeon; in the other two the diagnosis was missed, probably because insufficient importance was placed upon left sided pain and tenderness and because no blood diastase estimations were made.

CASE No. 1 Mrs. S. G., age 38. Admitted Feb. 10, 1936.

Diagnosis: Acute cholecystitis, cholelithiasis.

Operation: Cholecystectomy, exploration and drainage of the common duct.

Pathology: Acute pancreatic necrosis of considerable extent and fat necrosis.

History of mild gall-bladder disease since 1928. Stones visualized in 1935. Recently continuous right epigastric distress and tenderness. Onset of present illness, Feb 9, 1936 Extremely severe, sudden epigastric pain and continuous vomiting. Relief by heavy doses of morphine. Patient pale, dehydrated, quite ill but not in shock. Moderate tenderness in the whole epigastrium. Slightly jaundiced Temperature was 99, pulse 88, respiration 22, hemoglobin 78, red blood count 4,080,000, white blood count 16,400, with polymorphonuclear leucocytes 97 per cent, blood sugar 99 mg., and icterus index 20. Urine showed a trace of albumin and no sugar. Blood diastase not done. Operation performed Feb. 14, 1936, with patient in good condition. Stormy convalescence, including fever, high white blood count, much nausea and vomiting. Good recovery with no discharge of pancreatic secretions and no further trouble with pancreatic pathology. Discharged March 16, 1936.

Case No. 2. Mrs. V. W., age 49. Admitted Feb. 24, 1936. Seen late in illness with operating surgeon.

Diagnosis: Abscess in midepigastrium.

Operation: Drainage of pancreatic abscess.

Pathology: Chronic cholecystitis, cholelithiasis, acute pancreatic necrosis, pancreatic abscess.

History of biliary disease for last five years. Onset of present illness Feb. 3, 1936, with severe boring pain in the epigastrium and back, much nausea and vomiting. Relief by morphine. Gradual improvement until Feb. 23, when she began to show general malaise, fever, soreness and a large mass in the epigastrium. Temperature was 102.5, pulse 120, respiration 20, hemoglobin 68, red blood count 3,580,000, white blood count 20,000. Urine showed trace of albumin and no sugar. Blood diastase not tested. Abscess drained on Feb. 25. Stones in gall-bladder not disturbed. Patient continued with a moderate fever, inability to eat, discharge of large amounts of purulent material. She died in an advanced state of asthenia on April 16, 1936, on the fifty-first day of her illness.

Case No. 3. Mrs. S. A., age 48. Admitted June 23, 1936. Diagnosis: Chronic cholecystitis, cholelithiasis, and acute pancreatic necrosis.

Not operated upon. History of frequent gall-bladder attacks for years. Onset of present illness, June 23, 1936, with extremely severe epigastric pain radiating to left back, and persistent vomiting. Given one and one-fourth grains of morphine for relief. Patient quite ill but not in shock. Tenderness throughout epigastrium extending well around left costal margin. Pulse 140, temperature 99, respiration 30. Patient dehydrated. Blood pressure, systolic 248, diastolic 116 Weight, 240 pounds. Hemoglobin 114, red blood count 6,020,000, icterus index 20, blood sugar 256, blood diastase 125 (normal, this method 8-16). Urine showed heavy trace of albumin, no sugar. X-ray showed stones in gall-bladder, widening of duodenal circle but no deformity of stomach. Patient recovered completely in 29 days. Operation for biliary disease delayed because of hypertension. Operated upon successfully two years later at another hospital. No note made of pancreas Discharged July 22, 1936.

Case No. 4. Mrs. M. K., age 40. Admitted Dec. 18, 1937. Seen in consultation with operating surgeon.

Diagnosis: Chronic cholecystitis, cholelithiasis, acute pancreatic necrosis.

Operation: Eighth day of illness, cholecystostomy and drainage of pancreas.

Pathology: Chronic cholecystitis, cholelithiasis, acute pancreatic necrosis. Pancreas enlarged about six times. Extensive fat necrosis.

Onset of symptoms Dec. 13, with severe pain in epigastrium, persistent vomiting. Patient in moderate shock, could answer questions with difficulty. Moderate, persistent tenderness in whole epigastrium. Temperature 99, pulse 100, respiration 20. Urine showed trace of albumin and no sugar. Blood diastase not tested, icterus index 5, hemoglobin 82, red blood count 5,450,000, white blood count 26,000. Patient in considerable shock from operation on Dec. 21. No drainage of pancreatic secretions on dressings. Patient made a complete recovery, with no recurrence to date.

Case No. 5. Mrs. B. C., age 22. Admitted Nov. 10, 1939.

Diagnosis: Acute pancreatic necrosis, chronic cholecystitis.

Operation not yet performed.

History of similar but milder attack one month ago. Onset of present illness at 2 a. m. on Nov. 10, 1939, with severe pain in the whole epigastrium, continuous vomiting, weakness and fainting. Tenderness in entire epigastrium, lower right quadrant and pelvic floor. Skin of body showed a pink flush and lips were deep reddish purple. Admitted to hospital at 9:45 p. m. day of onset. Pulse 120, temperature 100, respiration 20. Systolic blood pressure 50, diastolic 5. Urine very scant, albumin heavy trace. Hemoglobin 75, red blood count 4,160,000, white blood count 31,000, segmented polymorphonuclear leucocytes 44, stabs 48, juveniles 5, blood chlorides 595 mg., blood sugar 101 mg., blood diastase 305 mg. (normal 80-150). Shock, low blood pressure (systolic 75, diastolic 40) and anuria continued until the third day when, after small doses of ephedrin, the blood pressure became normal and the urine was secreted freely. Epigastric tenderness continued for 10 days, after which all symptoms were gone. Patient discharged on Nov. 25, 1939, after careful studies had showed poorly functioning gall-bladder. Further x-ray studies were made on Jan. 15, 1940, and as the abnormality still persisted, operation has been advised.

Case No. 6. Mrs. A. H., age 58. Admitted Nov. 10, 1939.

Diagnosis: Chronic cholecystitis, cholelithiasis, acute pancreatic necrosis.

Operation: Cholecystectomy, exploration and drainage of common duct. Pancreas not drained.

Pathology: Chronic cholecystitis, cholelithiasis, area of acute pancreatic necrosis 2 inches in diameter in head of pancreas, fat necrosis.

History of old and recent gall-bladder disease. Onset Nov. 9, 1939, with sudden, severe *pain in epigastrium boring into left back and* spine, much nausea and vomiting. Relief by large doses of morphine. Patient not in shock. Soreness in whole epigastrium more marked to left below costal margin; no mass, x-ray visualized gall stone in gall-bladder. Pulse 90, temperature 99, respiration 22. Hemoglobin 87, red blood count 4,410,000, white blood count 15,400, segmented polymorphonuclear leucocytes 63, stabs 26, blood sugar 93 mg., icterus index 11.2, blood diastase 421 mg. in terms of glucose. Urine showed trace of albumin, sugar negative. Operation on Dec. 11 with patient in good condition. No drainage of pancreatic secretions. Good recovery; no recurrence to date.

CASE No. 7. Mrs. J. DuP., age 56. Admitted Jan. 7, 1940.

Diagnosis: Acute cholecystitis, cholelithiasis, acute pancreatic necrosis and deep left-sided pain and tenderness. Diagnosis of pancreatitis depended on very high blood diastase.

Operation: Cholecystectomy. Pancreas not drained.

Pathology: Acutely distended, edematous gall-bladder with stone obstructing cystic duct. Normal common duct with no palpable stones. Pancreas enlarged, edematous, filled with small areas of fat necrosis. No hemorrhages No free fluid.

History of many attacks of cholecystitis, last one in July, 1939. Onset of present illness was Jan. 4, 1940, while down town. Was able to go home in street car. Severe mid-epigastric pain radiating to back and spine Relief with one-half grain morphine Vomited only once after first dose of morphine. Pain of this attack very severe but just like other attacks of gall-bladder trouble and no more severe. Patient in severe pain when seen Jan. 7. Tenderness in whole epigastrium but more marked over gall-bladder and downward. X-ray showed distended gall-bladder filled with stones. Patient quite ill but not in shock. Temperature 100, pulse 90, respiration 22. Hemoglobin 100, red blood count 5,450,000, white blood count 18,500, *icterus index* 23, pre-operative blood diastase 1,694 mg in terms of glucose. Urine negative for albumin and sugar. Blood sugar 120 mg. Operation on Jan. 7 because of fear of perforation of gall-bladder. Blood diastase on Jan. 9, 116 mg and icterus index 7.8. On Jan 11, diastase 76 mg. and icterus index 6.7. Patient recovered after stormy postoperative period. No drainage from pancreas. No recurrence to date.

CONCLUSION

In conclusion, it would seem that much of the confusion regarding the etiology of this disease would disappear if the obstruction theory of the causation of pancreatic necrosis were accepted as a working hypothesis and if it were considered that the pancreatic edema, fat necrosis, pancreatic necrosis, hemorrhage, suppuration and peritonitis were only different pathologic manifestations resulting directly from the obstruction of the pancreatic ducts and the escape of the pancreatic ferments. Moreover, the controversy regarding the treatment of the disease can be much simplified if operation is delayed until the primary shock has disappeared and the milder cases have been eliminated. The more serious cases which do not show reasonably prompt improvement may then be treated by delay or immediate surgical drainage of the pancreas, as wise surgical judgment may decide.

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DISCUSSION

Dr. W. R. Lovelace (Albuquerque, N. M.): Dr. Smead has given a very comprehensive presentation of a difficult and controversial subject, and has emphasized the necessity for conservative therapy.

In a recent review on acute pancreatic necrosis in Japan, Tsuji found that out of a total of 68 patients, only 20 were women, while in the U. S. most cases occur in women. The hospital mortality on 50 patients that were operated on was 18 per cent, in contrast to 8 deaths in the 18 cases that were treated conservatively. Gall stones were found in only one case. In doubtful cases, Tsuji advocated abdominal paracentesis in the left hypochondrium.

An unusual clinical cause of acute pancreatitis was in a case described in 1939 by Fordy, in which the outlet of the ampulla of Vater was completely obstructed by an impacted piece of barley corn. Tsuji presents a point in favor of Rich and Duff's contention, published in 1936, that metaplasia of the epithelium of the branches of the prancreatic ducts leads to partial obstruction, with consequent dilatation and thinning of the acini and ductules behind the obstruction, so that at the time of active digestion the pancreatic secretions collect under sufficient pressure to rupture the finer ducts, thus allowing the secretions of the duct to escape into the pancreas. Tsuji found that the majority of his patients dated the onset of symptoms to shortly after eating or drinking alcoholic beverages.

According to Larson, the absence of bile in the vomitus may be an additional finding of great value in the diagnosis of the presence of ampullar obstruction. If the patient is not vomiting, aspiration of the duodenal contents is a relatively easy procedure and may serve as a means of determining the patency of the common bile duct.

Fallis (December, 1939) emphasized the fact that blood borne infection is a possibility clearly indicated by the occasional development of acute pancreatitis in a patient with mumps. Fully 60 per cent of his series of 26 cases at the Henry Ford Hospital gave a history of previous gastro-intestinal disease. Between 10 and 15 per cent of the patients with acute pancreatitis had either a bluish discoloration of the skin in the flank (Gray-Turner sign) or around the umbilicus (Cullen's sign).

The value of the urinary diastase as an adjunct in the diagnosis of acute pancreatic necrosis has been emphasized by Smythe, as well as Linn and Fallis, on the basis of animal experimentation where acute pancreatic necrosis was produced by the injection of small drops of metallic mercury into the pancreatic arteries at a time when the pancreas was stimulated to the height of its secretory activity. Smythe advocates the use of a modified Wohlgemuth method for the determination of urinary diastase. The urinary diastase begins to rise 6 to 8 hours after the onset of the disease, and usually returns to normal by the end of 72 hours.

As recently emphasized by Boothby, Mayo, and Lovelace, II, postoperative inhalation of 100 per cent oxygen insures a thorough oxygenation of the blood and lungs, thus favoring healing, helps prevent abdominal distention, and combats the development of shock, since it is well known that anoxia of the blood and tissue is a factor of utmost gravity in the production of shock. Transfusion of the blood is given to increase the volume of oxygen-carrying power of the circulating blood and to elevate the arterial pressure. Transfusion and the administration of pure oxygen are a useful combination, both in the prevention and in the treatment of shock. The sooner that shock can be alleviated, the sooner it is possible to operate, and the better is the prognosis.

Approximately 70 per cent of the gas in the intestines is nitrogen. The inhalation of the pure oxygen reduces the nitrogen partial pressure in the lungs to practically zero. As a result, the nitrogen in the blood diffuses into the alveoli and is then expired, since a gas always diffuses from a region with a higher pressure to a region with a lower pressure. In the same manner, the resulting reduced partial pressure of nitrogen in the blood allows this gas to diffuse more rapidly from any body cavity where the nitrogen pressure is comparatively high, such as the intestines.

Continuous suction by the Wangensteen method, through a Miller-Abbott tube, is the best method for intestinal decompression, but great care is necessary to avoid depletion of the chlorides and to maintain a normal blood chemistry. Continuous hot stupes and a rectal tube should always be used.

During the past year and a half, Mayo and Lovelace, II, acting on the results obtained by Fine and his coworkers, have found the administration of 100 per cent oxygen to be an effective adjunct to the above measures in reducing especially severe cases of gastric distention. Administration of oxygen by either the nasal or oral-nasal type of apparatus has proved to be comfortable, efficient, and economical.

I heartily approve Dr. Smead's thesis, which he has so thoroughly presented, and I am in complete agreement with the type of therapy which he has outlined.

Dr. C. D. Brooks (Detroit, Mich.) pointed out that if operations are performed early, in gall bladder diseases, as they ought to be, and the condition is not allowed to go on year after year, a great deal of pancreatitis can be prevented. In his opinion, 90 per cent of the cases of pancreatitis have been accompanied with gall stones. He pointed out that Dr. Smead had covered differential diagnosis extremely well from a clinical standpoint, and added that massive coronary thrombosis, mesenteric thrombosis and pancreatitis are about the only things to consider. He said that cases of acute gangrenous cholecystitis or of massive coronary thrombosis or of mesenteric thrombosis or of acute pancreatitis are not relieved by one hypodermic, although in almost every other disease entity relief is obtained by a hypodermic of one quarter, repeated perhaps in a couple of hours. The pain is not colicky; it is achy and dull in character. In his experience most of these cases of acute pancreatitis have been followed by gall bladder disease. He agreed with the essayist that when patients are admitted to the hospital with symptoms of shock, they should not be operated upon until their condition is improved. For more than two years he has treated all his cases with oxygen upon entrance to the hospital. Lividity of the cheek and lipase are among the important diagnostic factors. As additional treatment, massive stupes are placed over the entire abdomen. These are six inches thick and extend from the chest to the pubes and around the back; they are held in place with a binder. The patient is then given 100 per cent oxygen; for the last year and a half a large dose of sulfanilamide has been given; in every case the Miller-Abbott tube is used; duodenal drainage relieves the duodenum of the secretion, and this at times seems to relieve the patient. Through this tube a normal two per cent saline solution is given to overcome dehydration. All patients are given blood transfusions; a small amount of blood given at one time (350 cc. twice a day) is preferable to one massive transfusion. After the circulation has improved and the pulse rate has fallen to around 100 and some of the cyanosis has disappeared—a condition which is often produced by the administration of morphine, heat, suction, blood transfusions and glucose intravenously—operation is advised. The operation, done under spinal anesthesia given in small amounts, consists only of inserting soft drains with an inch tube in the gall bladder. The pancreas should not be touched. The wound is left open and covered with a voluminous pack, an enema is given in the afternoon and deep x-ray therapy is applied.

DR. S. L. GOVERNALE (Chicago). Someone made the statement that patients die occasionally, not so much of the disease as of the treatment. Too much therapy is often harmful. I fail to see the rationale of applying heat therapy to a patient who has already a collapse of the splanchnic area. Physiologically that area contains practically two-thirds of the vascular supply, and if the patient is in collapse one naturally must deduce that there is a great volume of blood, and it seems to me that heat attracts more blood to that particular area than should be there. I should like to ask the essayist about the treatment of complications, such as disruption of the abdominal wound by the action of the trypsinogen and trypsin. It seems to me that most of our trouble has been in the treatment of the sequelae. There is one more unusual sequela that has not been mentioned, and that is duodenal ileus. Abel, Bell, Judd and Puestow a few years ago presented a number of cases with acute pancreatitis that developed duodenal ileus. It is easy to see how this thing can happen, as the pancreas increases in size due to its inflammatory process, the thickness of it pressing not only upon the pedicle of the superior mesenteric vessel, but also upon the duodenal wall. I have met that particular catastrophe in one case where there was concomitant infection to the pancreas as well as duodenal ileus.

I should like to be advised as to the procedure in that particular case, namely, one in which there are two sequelae to contend with, one the pancreatitis, and the other the duodenal ileus. It seems to be a common procedure in most of the acute pancreatitis cases that the head of the pancreas as well as the liver bed must be decompressed, and I think that common duct drainage or choledochostomy should be the procedure in most of the cases.

DR. SMEAD. I personally am not convinced of the value of decompression of the common duct because I believe that while obstruction is an etiologic factor, nevertheless the obstruction of the common duct by the duodenum and the backing up of the bile into the pancreatic duct is probably only a rare cause. Rich and Duff pointed out that in metaplasia of the duct the obstruction is more likely to be high up, in the smaller duct. Clinical experience for years showed that a round worm climbing up into the pancreatic duct has caused obstruction and pancreatitis; there are some 50 such cases in the literature. As to dealing with the gall bladder and the removal of stones, I think that is all right provided the condition is acute at the time; otherwise I feel that drainage of the lesser peritoneal cavity is all that should be done. Incision of the pancreas, I believe, is a mistake. It is dangerous. There is serious danger of hemorrhage. The pancreas itself is soft, and I do not believe that the secretions have much difficulty in getting out. Duodenal ileus I have tried to combat simply by the use of a duodenal tube and drainage. I believe that sometimes there is even more than a duodenal ileus. I have seen one case in which there was actually pyloric obstruction. You have all seen, I presume, pyloric obstruction in carcinoma of the pancreas. That has happened in my experience several times. The only hope here is correct drainage. Rupture of the wound in these bad cases, with drainage of a considerable amount of trypsin, of course, is bound to occasion a serious condition. I suggest sewing them up with wire and probably repair of the hernias later. I have discussed treatment of collapse.

I have only one suggestion to make, based on an experience in a recent case. The patient was in tremendous vascular collapse. I gave ephedrin, small doses every four hours, as in spinal anesthesia; the blood pressure rose promptly, the anuria disappeared and the patient improved. Whether that was a coincidence I do not know, but it is a thought, at least, and the procedure is harmless. As to gall stones, I think we are all impressed with the relation of gall stones to pancreatitis. I am, because at least 95 per cent of these cases have been associated with gall bladder disease, and quite a number of them with acute disease. However, in several of them there has been nothing acute at all. I believe if the condition is acute it should be dealt with along with the other conditions. The thing I wish to stress is that operation should not be performed in the acute stage. In most of those cases within a week or ten days the patient is well, almost ready to leave the hospital. If we can differentiate those cases and allow them to recover without surgery, many patients will be saved that would otherwise have succumbed to surgery. Had I operated in the case cited in which ephedrin was used, the patient would have died. I believe she is well today. While Rich and Duff believe that not over 20 per cent of the cases are associated with gall stones or biliary diseases, my experience differs from their conclusions.

RÉSUMÉ

Le traitement de la nécrose aiguë du pancréas

Le mortalité de cette condition a été diminuée et par le traitement conservateur et par le diagnostic précoce. La théorie que la maladie est due à l'obstruction et à la rupture des conduits pancréatiques et au déversement dans le pancréas de lipase et de trypsine nous guide dans le traitement. Afin de ne pas opérer inutilement, on retardera l'inte
vention jusqu'à temps que le mal
remis du choc et que les cas
soient éliminés. Les cas graves
opérés.

ZUSAMMENFASSUNG

Die Behandlung der akuten Nek des Pankreas

Konservative Behandlung und
Einschliessung vieler milder Fälle d
der besseren diagnostischen Metho
haben die Mortalität dieser Krankh
stark herabgemindert. Eine vorläufi
Hypothese wird in der Theorie gefu
den, dass die Krankheit eine Folge de
Ruptur der Pankreaskanäle mit Extra-
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die Gewebe ist. Um unnötige Operationen zu vermeiden sollte erst operiert werden wenn der Shock verschwunden und ein milder Fall ausgeschlossen ist. Die schwereren Fälle die dann noch keine Besserung aufweisen können operativ behandelt werden.

SUMARIO

Procedimiento à seguir en la pancreatitis necrótica aguda

Tratamiento conservativo de la pancreatitis agúda con necrosis y la inclusión de muchos casos lijeros debido á mejores métodos de diagnóstico han reducido la mortalidad de esta enfermedad. Una hipotisis para la base de la etiología es encontrada en la teoria de que la enfermedad es debida á la obstrcción y rotura del conducto pancréatico con el escape dentro de el pancreas de lipasas y tripsinas. Para evitar cirugía innecesaria la operación debe de ser retardada en todos los casos hasta que el shock haya desaparecido y los casos lijeros han sido eliminados. Los casos mas serios los cuales no muestran mejoramiento pueden ser tratados entonces con cirugía.

RIASSUNTO

Maneggio della necrosi acuta del pancreas

Trattamento riservato dei casi di necrosi acuta del pancreas, e l'addizione di molti casi lievi dovuti a migliori metodi di diagnosi, hanno ridotto la mortalità di questa malattia. Una possibile ipotesi per l'etiologia si trova nella teoria che il morbo sia dovuto ad una ostruzione e rottura dei canali pancreatici con fuga di lipase e tripsina nel pancreas. Per evitare chirurgia superflua, l'operazione dovrebbe essere differita in tutti i casi fino a che lo shock si sia calmato e i casi lievi siano stati eliminati. I casi piu gravi i quali non dimonstrano alcun miglioramento possono essere operati.

E. B. Krumbhaar has been chosen president of the College of Physicians of Philadelphia for 1940. **O. H. Perry Pepper** was elected vice-president; **J. Harold Austin,** secretary; **John B. Flick,** treasurer; **A. P. Brubaker, Charles W. Burr, Francis R. Packard** and **John H. Gibbon,** censors; and **Robert H. Ivy** and **T. Grier Miller,** incoming councillors

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New officers of the Pathological Society of Philadelphia, elected January 11, are: **Dr. Jefferson H. Clark,** president, **Dr. R. Philip Custer,** vice-president, and **Dr. Herbert L. Ratcliffe,** secretary-treasurer

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Lectures were given in the medical centers of Argentina by the following **Professors Rovenstine,** New York (anesthesia); **Grey Turner,** London, (surgery); **G. Marañón,** Madrid; **G. G. Voronoff,** Paris, and **George Harrop.**

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Dr. Eldridge L. Eliason, professor of surgery, University of Pennsylvania, and **Dr. Frank H. Lahey,** Lahey Clinic, Boston, will present a symposium on "Cholecystitis and Cholelithiasis With and Without Jaundice" under the auspices of the Section on Gastroenterology of the Medical Society of New Jersey at Haddon Hall, Atlantic City, on June 5, 1940. This session will be held in connection with the one hundred and seventy-fourth annual meeting of the Medical Society of New Jersey. **Dr. Hyman I. Goldstein,** of Camden, N. J., is chairman and **Dr. Carroll Deane Smith,** of Paterson, N. J., is secretary of the Section on Gastroenterology.

HETEROGENOUS BONE GRAFTS

MIGUEL LOPEZ ESNAURRIZAR, M.D., F.I.C.S.
Member of the Academia Mexicana de Cirugia
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THE principal object of this work is to call attention to the indications and advantages from the use of properly prepared dead bone used instead of autografts.

PHYSIOLOGY OF OSTEOGENESIS

It would not be possible to treat in this article the problem of the biology of bone grafts, because of the obscurity that still surrounds it. Nevertheless it seems that no fragment of bone, dead or alive, of homoplastic origin, is capable of continuing its life unchanged. It always suffers a profound modification by the surrounding tissues. The Haversian canals and all other spaces are progressively invaded by young connective tissue; later on, the calcareous bone substance is absorbed to be replaced entirely by new bone. It is possible that in living bone graft transplants, some transplanted living cells may continue to develop, but most of them disappear and are replaced by new cells derived from the surrounding tissues. Undoubtedly the grafts have mechanical functions (sustaining and refilling), chemical functions (as a source of mineral salts in situ), morphological functions (the bone canals serving as guides to the medullary cells, promoting the formation of new bone within the graft) and perhaps, a biological function, stimulating osteogenesis; this is more energetic in autografts or homoplastic grafts than with dead bone. Whether the graft is completely reabsorbed is perhaps of little importance if the same is opportunely replaced by new bone.

The evolution of grafted bones, seen radiographically, discloses that after some time the respective shadows become clear, reduced and finally disappear, as if invaded by new bone tissue. Leriche and Policard's theory is that of calcium mutation, i.e., bones during life undergo perpetual recomposition, sometimes becoming decalcified and at other times recalcified, according to organic necessities. In new bone formation, calcium phospate substances, dissolvable by osteolysis, are necessary in the surrounding tissues. A bone graft suffers immediate lysis or partial destruction of its structure, being attacked by the surrounding tissues. By a mixed phenomenon of lysis and osteoclasis, the walls of the bone are progressively attacked; a process of repair and reconstruction soon follows.

ROLE OF PERIOSTEUM

Is the osteoblast a specific element of particular osteogenetic value, or is it a modified form of a fibroblast? Lexter taught that the periosteum and medulla are the only tissues of the adult from which bone tissue can be formed in a direct manner. Leriche and Policard, on the other hand, believed that all young connective tissue, if circulatory conditions are not favorable, may be ossified. For bone formation, it is sufficient to provide the necessary mineral materials. A transplanted graft serves as a guide and as a resevoir providing calcareous salts.

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rôle to the medulla and endostial elements. Other authors, on the contrary, ascribe to the periosteum no osteogenetic function. New bone formation is produced, they believe, at the expense of the grafted bone cells; still others maintain that bone formation results exclusively from the graft.

Leriche and Policard, contrary to the traditional doctrine of Ollier, studied the osteogenetic function of the periosteum. They say that the periosteum is nothing more than a fibrous membrane surrounding the bone, no cell layer existing between both. If the periosteum, when separated, forms bone, it is only because there were withdrawn with it some microscopic bone elements that remained adherent to its inner wall; the periosteum constitutes a connective tissue easily undergoing ossification, the bone granulations providing the indispensable calcium materials. Albert maintains that all young or renewed tissues can be ossified under certain favorable conditions if bone is provided. Bone forming cells are found in the periosteum, and the presence of phosphorous and calcium salts in the general economy suffices to generate bone; the periosteum need not be near a bony or calcareous deposit.

Two practical conclusions may be drawn: (1) Periosteum is capable of producing bone without the presence of nearby calcium deposits; (2) bone without its periosteum or dead bone surrounded by young connective tissue is capable of being transformed into living bone tissue. Therefore one is justified in using as the same "graft" a dead bone transplant properly prepared and conveniently placed on a bed of young connective tissue.

LIVING VERSUS DEAD BONE GRAFTS

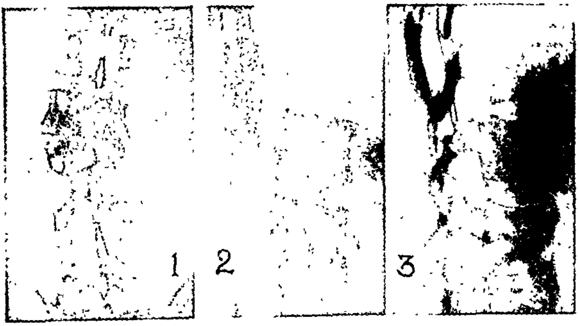
It is universally admitted that living autoplastic grafts become better adapted to the patient than dead bone grafts; the former, protected by the periosteum, possesses the more marked osteogenetic attributes, and in any event, the bone graft acts as a foreign body, preventing the bony ends from remaining separated and the intervening space from being filled by connective or scar tissue, thus frustrating attempts at osteogenesis. Contrary to nonabsorbable bodies, quickly embodied bone transplants through their inherent qualities soon come into close association with the surrounding tissues. In recent years the superiority of living grafts over dead grafts has been questioned.

Dead bone, the use of which is credited to Waldenstrom and Svante Orell, is said to be better than other materials; it is devoid of soft tissues and therefore allows easier penetration. In some clinics (Leriche's, etc.) "os purum" has been widely used. I have used it extensively in my clinic. I have gained the impression that in many cases of pseudoarthrosis and vertebral grafts the os purum, when conveniently placed, grows again, and lives as long as a living autograft. Porous bone grafts are the best of all types of grafts for transplantation. The extraordinary speed with which a bony cavity filled with "os purum" becomes covered with sound bone is really surprising. One may say that the "os novum" derives its nourishment from os purum placed under the periosteum. Once the os novum is transplanted, it is more easily incorporated than grafts that have not been previously prepared. It has not been demonstrated that partially revived os novum is viable bone. According to Orell, young bone fragments are absorbed, the soft tissue remaining alive.

If bone grafts act as splints and as sources of supply of phosphorous and calcium salts, dead tissue grafts must give results identical to those of living bone tissue (autografts) or those of revived bone (os novum).

USE OF OS PURUM

Os purum is prepared from fresh bones obtained by surgical amputations or from bones coming from the abattoir, especially ox bones. Orell's technic of preparing these follows:



Figs. 1, 2 and 3 Roentgenograms of lumbar spine of Mr. A. B. Figs. 1 and 2, antero-posterior and lateral views respectively, taken June 2, 1929, before operation. Fig. 3, lateral view, taken Aug. 20, 1939, 2½ months after operation

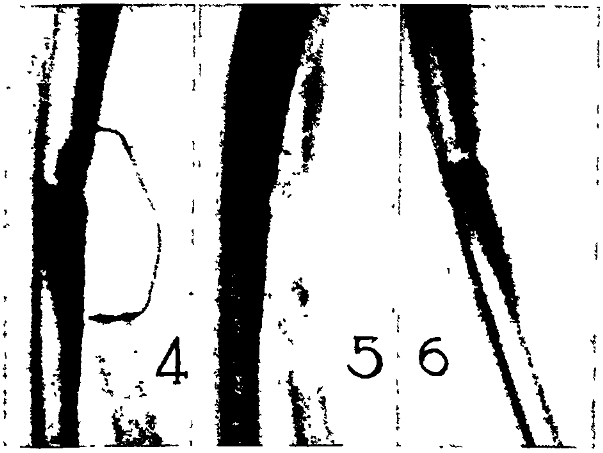
The soft tissues are first removed mechanically. Their albuminoid substances, especially the blood albumins, are extracted by means of a protracted bath in saline solution. Next decalcification is accomplished by treating the bones with caustic potash, lye, and lastly, the grease is removed by acetone. The bone is then carefully washed and preserved in a dry state. The bone thus obtained for grafting is a dead bone deprived as much as possible of its organic components.

The os purum constitutes the most favorable form of dead grafts; it is tolerated perfectly, for its empty canals are admirably adapted to rehabitation. Generally, porous bone is more readily and easily absorbed than compact bone, which is resorbed with difficulty, but on the other hand, the former is more brittle; therefore, in every case, the most adequate bone must be selected, according to the particular necessities.

In order to supply vital elements to the os purum, Orell places it under the periosteum from four to eight weeks. It is then extracted, partially rehabilitated and surrounded by a newly formed soft and elastic connective tissue in the beginning stages of ossification. The site of election for transformation of this os purum is underneath the periosteum of the inner surface of the tibia. According to Orell, os novum insures osteogenesis, thanks to the living periosteal tissue in ample proliferation. The survival and incorporation of these tissues in the bed of the graft is the *sine qua non* of success. It is essential to fix the transplanted graft tightly to the ends of the bone, creating intimate contact with these, without permitting mobility of any kind. The graft must penetrate deeply into the receptor tissues in order to obtain perfect union. A persisting sliding movement stimulates the connective tissue to mature rapidly, to which extent it interferes with osteogenesis. The receptor tissues must be in a healthy condition. Os purum grafts depend upon the osteogenetic properties of the tissues at the site of implantation. It is essential that no violent trauma occurs. Orell insists upon the necessity of taking great care of the bone, the periosteum and the medulla whence the first relations with the new bone will arise. According to Orell, also, the success of an os purum graft depends upon carefully placing it within specifically osteogenous sound tissues.

AUTHOR'S EXPERIENCE

At our clinic in Mexico City, we have performed some operations with heterogenous os purum grafts that were prepared under our personal direction. We prefer to use these grafts instead of the os novum grafts because of greater ease of technic. Patients operated on in this manner experience less pain and we believe that os novum offers no advantages over os purum.



Figs. 4, 5 and 6. Roentgenograms of right radius, middle third, of Mr. A. M. Fig 4, nonunion of bone following osteosynthesis with silver wire (still in place), with pseudoarthrosis. Fig. 5, "os purum" graft in place following removal of silver wire. Fig. 6, absorption of "os purum" has occurred and function of arm is almost wholly restored.

Tuberculous Spondylitis. In these cases (Pott) we have performed the classical operation of Albee, placing the graft deep into the split spinous processes; rarely do we resort to lateral spinal graft at the sides of the spinous processes. Figures 1, 2 and 3 are in point. They represent roentgenograms of Mr. A. B. and show the lumbar spine before (June 2, 1939) and after (Aug. 20 of the same year) Albee's operation, depicting the graft in its place. This patient has shown an excellent tolerance towards the grafted bone. The operative result was entirely satisfactory.

Os Purum Graft in Pseudoarthrosis. I present the roentgenograms of Mr. A. M., who suffered a subcutaneous fracture of the right radius at its middle third. Osteosynthesis with silver wire was performed by another surgeon, which failed; pseudoarthrosis developed; the patient also presented an intolerance to the silver wire. Pronation and supination were excrutiatingly painful and the ends of the bone were becoming decalcified. We inlaid a small bar of os purum. The result was: disappearance of pain on motion; the recovery of most of the movements of the forearm, especially pronation and supination. The roentgenograms in Figures 4, 5 and 6 were taken before and after the operation.

Graft in An Old Fracture of the Patella. Mr. F. J. had a comminuted fracture of the patella. An os purum graft was done, as can be seen in Figures 7 and 8. The results were excellent.

INDICATIONS FOR USE OF OS PURUM

Indications for the use of os purum grafts are exceedingly numerous. This material may be used to fill the holes in the skull following trephining. This

ZUSAMMENFASSUNG

Heterogene Knochentransplantate

Der Ausdruck heteroplastisches Transplantat bezeichnet die Benutzung eines Tierknochenfragmentes auf einen Menschen, zum Unterschied von homoplastischen Transplantaten wobei das Transplantat von der selben Person herstammt, meistens von der Innerfläche der Tibia. Der Verfasser, nach sorgfaeltiger Vorbereitung von frischen Knochen von abattoir nach Regeln von Swante Orell, wendet sie an wo immer die Transplantate indiciert sind. Die Resultate sind dankbar. Umsomehr, da dem Patienten die Entfernung eines gesunden Knochenstüskes für Transplantat erspart wird. Durch dieses Vorgehen wird die erste Operation unnötig Ausserdem sind dadurch Fragmente verschiedener Grösse und Form herstellbar. Illustrative Fälle werden geboten.

SUMARIO

Injertos de huesos heterogeneos

El termino injerto "heteroplástico" significa el uso de fragmentos de hueso animal en el hombre, contrastado con el injerto "homoplastico" tomado de la misma persona, generalmente de la porción interna de la tibia. El autor siguiendo las reglas de Svante Orell, despues de propiamente preparar hueso fresco obtenido del matadero, los aplica en esas condiciones donde injerto de hueso está indicado. Los resultados de este método son alentadores. Ademas, el enfermo no sufre la operación de extracción de hueso sano para el ingerto. En este procedimiento, la primera operación se hace innecesaria. Varias formas y medidas de fragmentos de huesos estan á nuestra disposición. Casos ilustrativos son citados.

RIASSUNTO

Trapianto osseo eterogeneo

Il termine "eteroplastico" significa l'uso di frammenti ossei di animali nell'uomo, per distinguerlo dal trapianto "omoplastico", preso dalla stessa persona in generale dalla regione anteromediale della tibia. L'autore seguendo le prescrizioni di Svante Orell, di preparare ossa di animali ottenuti da un macellaio, gli applica in condizioni nei quali un trapianto è indicato. I risultati di questo metodo sono buoni. Di più il malato risparmia una seconda incisione per la rimozione del trapianto, perchè qui questa non è necessaria. Pezzi di osso in diverse formi possono essere conservati. Casi illustrativi sono citati.

APPLICATIONS FOR ASSOCIATE MEMBERSHIP, MEMBERSHIP AND FELLOWSHIP IN THE INTERNATIONAL COLLEGE OF SURGEONS MAY BE ADDRESSED TO DR. CHARLES H. ARNOLD, 908 TERMINAL BUILDING, LINCOLN, NEBRASKA. THESE WILL BE ACTED UPON IN THE REGULAR ROUTINE AS OUTLINED IN THE BY-LAWS. APPLICATIONS FOR CONSIDERATION MUST BE RECEIVED NOT LATER THAN A MONTH PRECEDING THE REGULARLY STATED ASSEMBLY MEETING.

IMPORTANCE OF AIR WAY IN ANESTHESIA

V. O. CARDENAS, M.D.

CHICAGO

AN unobstructed air way is one of the fundamental principles on which the administration of an inhalant anesthesia is based. If the air way is perfectly clear the anesthetic is brought into contact with all the internal walls of the alveoli. It is obvious that the anesthetist must constantly bear in mind the importance of a clear air way. Advancements in the discovery of different kinds of anesthetics should not exceed the knowledge of their application to the patient.

The importance of the air passage forces us to consider the study of the ventilation of the lungs according to the anatomic divisions of the respiratory tract, and for this purpose it can be divided into nasal, oral, pharyngeal, laryngeal, bronchial and alveolar passages. Each anatomic portion should be considered separately.

CAUSES OF OBSTRUCTION

The nasal and oral passages can be kept clear with a simple nasal or oral air way which can be inserted whenever necessary. Some difficulties may be encountered in inserting an air way in the nose, if hypertrophic turbinates with firm bone structures are present, or in the oral passage, if the muscles of the jaw are rigid. The pharyngeal passage may be obstructed by various means—relaxation of the tongue, vomiting, mucus, etc. The tracheal passage may be obstructed by plugs of mucus, particles of food aspirated from the stomach, etc. The bronchial passages and the alveolar cavities can be obstructed in certain regions, decreasing the ventilation in that portion of the lung. Tumors and malformations may be present in any portion of the air way.

It is easy to recall these facts during the administration of the anesthetic and to visualize the condition which may be present in the lungs. Some of the effects produced can be observed at the time of their occurrence if the upper air passage is obstructed. This obstruction alarms the surgeon and the anesthetist, who correct it by inserting an adequate air way and administering oxygen to the patient. The immediate oxygenation of the blood which results calms the momentary excitement, but damage may have been done to the lung, a damage that may not be noticed until hours later.

PHYSICAL PHENOMENA

In consideration of the physical phenomena which occur in obstruction, it is obvious that an obstruction of the respiratory passage, however short its duration, must be avoided.

Physically the lungs are constantly subjected to a change in pressure. Inhalation produces a negative pressure in the air passage, including the terminal portions of the alveoli. This negative pressure is resisted by the elasticity of the tissues; the inflow of blood to the capillaries; the entrance into the air passage of air, of carbon dioxide, moisture, etc., from the blood, and of a certain amount of mucus; and by the resistance of the intercostal spaces.

Bearing in mind the anatomy and physiology of the lungs, it must be admitted that an obstruction will cause serious damage to the alveolar tissue. Experiments conducted on patients under the influence of anesthesia show that the vacuum created in the air passage of the lung may reach a maximum of about 40 mm. of mercury. This vacuum is present if an inspiration is pr [illegible] when the upper air way is obstructed and the air passage is at the same time resisting the impact of the negative pressure. This vacuum reduces the effectiveness of the resisting factors—rush of blood to the capillaries, elasticity of the tissues, inflow of mucus into the air passage, etc.—and affects especially the carbon dioxide factor and the physical changes occurring in the lungs. The last may consist in edema of the alveolar walls with extravasation of blood, which may reach the alveolar cavity. The first or the carbon dioxide factor is very important because, if in a given time the carbon dioxide is drawn out of the blood in large quantities, the respirations will stop due to the lack of carbon dioxide excitation upon the respiratory centers.

TYPES OF OBSTRUCTION

Obstructions may be divided into three types: partial obstructions which prevent inhalation, partial obstructions which prevent exhalation, and total obstructions.

The writer's observations are limited to patients with whom ether has not been used, and for this reason it can be stated that all cases of bronchial pneumonia were due to some type of obstruction.

In the first type, the obstructing element acts as an exhalant valve but prevents inhalation. The result is an increase in the elimination of carbon dioxide from the blood, and this, in turn, causes a decrease in the number of respirations per minute and may even cause breathing to stop entirely. In this case the patient suffers not only from lack of oxygen, but also from lack of carbon dioxide. The lack of carbon dioxide decreases the excitability of the heart centers, resulting in a retardation of the circulation of the blood. The color of the patient varies from dark grey to pale grey. Relaxation occurs, reflexes disappear and temporary shock ensues. This condition is entirely opposite from that produced by total obstruction.

In total obstruction there is an accumulation of carbon dioxide in the air passage and the respirations are over excited. The color of the patient varies from dark greyish blue to dark blue and is typical of that seen in asphyxia. It is caused by lack of oxygen and an excess of carbon dioxide. In these cases the action of the heart is excited and the circulation of the blood is increased to its maximum, the inhibiting action of the carbon dioxide being carried first to the respiratory centers and later to the circulatory centers. This condition, even though it is more alarming than that produced by obstruction to inhalation, will cause less damage to the nerve cells and to the tissues in general than will the latter. The fact that its symptoms are alarming causes the anesthetist to act more promptly to relieve the condition than he does in cases of obstruction to inhalation.

Obstruction to exhalation is produced when air inhaled is retained partially or totally in the air passage. The patient in this case is dark blue in color, but intermingled with the blue are patches of normally colored skin, indicating the presence of completely oxygenized blood. A bluish face and a pink ear or pink portions in a bluish chest may be seen. This condition resembles the phenomenon present in the newborn when Botal's foramen persists. It is really due to a mixture of arterial and venous blood and is produced by partial oxygenation of the venous blood. If this obstruction is total, whereby the air enters the lungs but does not leave them, the pressure in the air passage becomes positive, producing distension of the alveolar wall, congestion of the pulmonary circulation, and other effects, to be noted later.

EFFECT OF OBSTRUCTIONS

All these forms of obstructions may occur in any of the bronchial ramifications. In other words, they may be anatomically localized to a small portion of the lungs and will not cause the above mentioned symptoms, but harmful results will nevertheless follow. They may produce bronchial infarcts with retention of mucus, serum, etc., which will lead to localized infection or abscess of the lung and create an ideal medium for the development of bronchial pneumonia or localized collapse of the lungs. This condition may be localized to a very small region or to the entire lobe

The damage to the lung will be according to the type of obstruction. If the obstruction prevents inhalation, the negative pressure which results may be powerful enough to produce generalized extravasation of blood into the alveolar tissue and even into the lumen of the alveoli; this condition will produce a temporary edema of the alveolar wall (mechanical edema of the lungs) which will produce deficiency of the interchange of gases. In addition, this irritation of the alveolar wall will render it susceptible to the invasion of bacteria, followed, perhaps, by bronchial pneumonia, or the exudate may serve as an ideal culture medium for the pneumococcus, which may be present, followed by lobar pneumonia. This last condition, however, the writer has very seldom observed.

Obstruction to exhalation will cause an increase in the positive intra-alveolar pressure, reaching in some cases a maximum of 40 mm. of mercury, which may cause the rupture of a small or a large number of alveoli. The later pathological results in this type, however, are similar to those found in obstruction to inhalation.

PREVENTION

With a clear picture in our minds of the mechanism of obstructions and of the lesions produced by them in the lungs, the next step is to try to prevent their occurrence.

First of all, a complete examination of the air passage should be made before administration of the anesthetic to determine whether there is any pathology present (nasal, oral, pharyngeal, laryngeal, etc.) which may interfere with the free administration of the inhalant anesthetic. During this examination all clinical symptoms should be determined regarding the nervous excitability of the patient, which later may produce nervous spasms of the glottis, muscles of the pharynx and jaw, etc. This condition is easily corrected by administering a sedative, which can be a barbiturate, the night before the operation, or by giving morphine-atropine or morphine-hyoscine, in half doses one or two hours before the operation, followed by another dose half an hour before the operation. Any rectal anesthetic may be used for premedication, to be determined according to the patient's need. A fairly heavy premedication is sometimes objected to by the surgeon, who claims, rightly, that it depresses and retards the respiration; but an alert anesthetist will take advantage of the effect of premedication and give the patient just enough anesthetic to produce the necessary relaxation.

Many air way devices have been designed by different anesthetists. In each an attempt is made to adapt the device as nearly as possible to the anatomy of the pharynx (wire, rubber, etc. being used). Any of these pharyngeal air ways can be inserted, if necessary, but all are defective and worthless in laryngeal obstructions. In cases of the latter type, a tracheal air way like the one designed and made by Dr. Ben Morgan, of Chicago, gives excellent results. As will be noted in the picture, there are three essential portions to the device: *A*, the oral-pharyngeal portion; *B*, the esophagus-laryngeal portion, which is a ball about one and one-half inches in diameter and which has the double function of sealing the upper portion of the larynx and occluding the paryngeal portion of the esophagus, keeping it free from material regurgitated from the stomach; and C, the portion which is introduced into the trachea. The *A'*-portion is designed to permit removal by suction of any mucus which may have accumulated in the air passage or of water which may be present in case of drowning. The use of suction will not interfere with the administration of anesthesia or artificial respiration. A simple pharyngeal air way will be sufficient in most cases to keep the upper air passage free from any obstruction; if necessary, the tracheal tube herein described can be introduced.

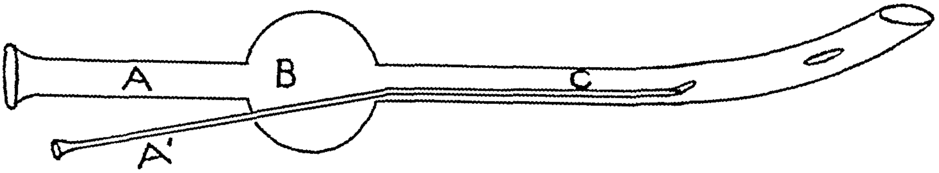


Fig. 1. Tracheal air way. *A*, oral-pharyngeal portion; *B*, esophagus-laryngeal portion, a ball about 1½ inches in diameter; *C*, portion introduced into trachea, *A'* portion for the use of suction.

The placing of any air way is a simple matter if the patient has had premedication sufficiently heavy to decrease all pharyngeal reflexes. The air way may be left in place until the patient awakes. If the premedication has been insufficient and reflexes are still present, the use of cyclopropane in adequate doses is advised, this should be given before the introduction of the tracheal tube is attempted, followed by the administration of the inhalant anesthesia.

RESULTS

For three years Dr. Morgan has used this method on my patients. During this time we have watched very closely the air way factor, and only one case of bronchial pneumonia has occurred. This was a case of streptococcic appendicitis with positive blood culture in which a secondary localization of the streptococcus was carried to the lungs by the blood. Dr Morgan with his tremendous experience in anesthesia states that he has obtained very good results from using this air way.

SUMMARY

The anatomy of the respiratory tract is reviewed to show how obstructions occur during the administration of inhalation anesthesia. Obstruction may be partial, affecting either inhalation or exhalation, or complete. Premedication and a tracheal air way device will relieve and often prevent obstruction.

RÉSUMÉ

L'importance du conduit aérien durant l'anesthésie

L'auteur nous décrit l'anatomie des voies respiratoires afin de mieux discuter comment dans le cours de l'anesthésie les voies parfois sont obstruées. L'obstruction peut être partielle, interessant l'inhalation ou l'exhalation, ou complete. La prémedication et l'emploi d'un appareil destiné à maintenir béant le conduit trachéen soulagent et souvent préviennent l'obstruction.

ZUSAMMENFASSUNG

Die Wichtigkeit einer Luftkanüle während der Anästhesie

Die Anatomie des Respirationstrakts wird kurz wiederholt um das Vorkommen von Verschlüssen während der Inhalationsanästhesie zu erklären. Ein Verschluss kann vollständig oder teilweise sein, in welchem Falle entweder Ein-oder Ausatmung beeinträchtigt wird. Die der Operation vorhergehende Behandlung und eine Trachealkanüle

werden oft einem Verschluss vorbeugen oder ihn wenigstens erleichtern.

SUMARIO

Importancia de las vias-aereas en anestesia

Un resumen de la anatomia de las vias aereas es hecho para indicar las localizaciones de las distintas obstrucciones que pueden presentarse en la anestesia por inhalación. Las obstrucciones son divididas de acuerdo con el mecanismo en tres tipos pricipales: (1) Obstruccion á la inhalación, (2) obstrucción á la exhalación, (3) y obstrucción total Cada una de estas puede presentarse en una forma mixta. La prevención de obstrucciones es indicada.

RIASSUNTO

Importanza di un tubo per il passaggio dell'aria durante l'anestesia

Si presenta l'anatomia dell'apparato respiratorio per dimostrare come ostruzioni possono accadere durante la somministrazione di un anestetico per inalazione. L'ostruzione puo essere parziale, impedendo o l'inalazione oppure l'esalazione, o completa. Uso di medicazione prima dell'operazione ed un tubo tracheale aiutera e spesso evitera l'ostruzione.

* * *

The American Association for the Study of Goiter will meet in annual session April 15-17 at Rochester, Minn. Papers will deal with goiter and other diseases of the thyroid gland. Dry clinics will be conducted by guests of the Association and operative clinics, by the staff of the Mayo Clinic. The Van Meter prize award of $300 and two honorable mentions will be presented to those submitting the best essays concerning original work on problems related to the thyroid gland.

The Wellcome Gold Medal and cash prize of $500 will be awarded by the Association of Military Surgeons of the United States "for researches, discoveries, inventions, designs, improvements, essays or any other acts or deeds . . . . desirable and helpful to the objects of the association, and relating to any phase of medico-military affairs and disease control associated with the army, navy, militia and public health and marine hospital service" The competition is open to members or persons eligible for membership in the Association

* * *

respiration. Cyanosis may be present. Pneumothorax is frequently associated with hemothorax.

HEMOTHORAX

Hemothorax is the most frequent complication observed, but in many instances it requires no special treatment. The compression caused by the blood in the thorax may check extensive or serious bleeding; consequently, the patient should be watched carefully, and if no serious symptoms arise, aspiration or open thoracotomy should be delayed several days. The blood usually clots slowly, if at all, in the pleural cavity, due to the smooth endothelial lining, so that aspiration may be all that is required. At times intercostal incision with removal of blood and clots is necessary.

If injury to an intercostal blood vessel, an internal mammary vessel, or any large intrathoracic vessel is suspected, immediate operation should be performed. Ligation of both ends of the bleeding vessel should result in recovery, provided the lost blood or its equivalent is replaced into the circulation and no other serious complication is present. Autotransfusion or the usual donor-recipient transfusion is of advantage, if there is much loss of blood or associated shock. The blood from the pleural cavity has been used safely for autotransfusion and also the blood which has come from the liver, spleen, stomach, kidney or a perforated blood vessel. However, if the lower small intestine or the colon is perforated, there may be danger from contamination with resultant septicemia.

There were 18 instances of hemothorax in the cases of gunshot wounds, with 9 deaths (50 per cent), and 15 in the cases of stab wounds, with 6 deaths (40 per cent), a total of 33 with a mortality of 45 per cent in the hemothorax cases. Conners and Stenbuck[3] advocate removing the blood because of the danger from pressure or infection, but the writer does not believe this is necessary. Hemorrhage may occur occasionally in the mediastinum, where the blood clots quickly, and a large vessel is usually involved. This is difficult to diagnose and is a serious condition. One patient in this series died of hemorrhage, and at autopsy 4,000 cc. of clotted blood were found in the mediastinum.

PNEUMOHEMOTHORAX

In some cases it is difficult to distinguish between hemothorax and pneumohemothorax. Without roentgenograms of the chest it is next to impossible to differentiate between them, and even then, unless the exposures are made in at least two planes, a moderate amount of air may be overlooked.

This probably accounts for the discrepancy between the 38 per cent of cases of hemopneumothorax in Boland's[2] series and the 11.5 per cent in this series, since the addition of his hemothorax to his hemopneumothorax cases gives 63 per cent, whereas the writer's combined cases total 50 per cent.

The treatment of pneumohemothorax is similar to that of hemothorax unless there is a considerable amount of air present with marked dyspnea or cyanosis from compression of the opposite lung, when open operation with lung suture or packing with exteriorization and ligation of the bleeding vessels is indicated.

Nine of the 10 patients had gunshot wounds, two (22 per cent) of whom died, one having perforation of the liver, esophagus and diaphragm with hemoperitoneum, and the other having perforation of the stomach and diaphragm with two and one-half liters of blood in the left side of the chest. Both patients had undergone laparotomy.

EMPYEMA

Empyema occurred in six cases (6.9 per cent) with three deaths, one being a case of pyohemothorax. One patient had

LACERATION OF TISSUE

Laceration of lung tissue is present in a large percentage of cases, but often such laceration is minor or unrecognized. In this series no case was operated upon primarily for laceration, so that the number is undeterminable.

Conners and Stenbuck[3], in a series of 32 cases, observed only 3 in which the lungs were lacerated, when as a rule only the chest wall was operated upon, but in another series of 32 cases, in all of which operation was performed by exteriorization of the lung, laceration was discovered in 24. By this procedure the mortality was reduced practically 50 per cent. After intensive study they conclude that operation is advisable in cases of the following: sucking wounds, wounds close to the sternal borders with likelihood of injury to the heart and the internal mammary vessels, those in which the lung presents itself in the open wound, or in which the penetration might involve the diaphragm, or with tense pneumothorax, or with marked subcutaneous emphysema.

Bohrer[4] states that both entrance and exit wounds of the lung should be found in gunshot cases, that lacerations of the lung should be smoothed by cutting away the torn portion and any larger vessels or bronchi in the lacerated part ligated. The lung wound should be sutured and exteriorized.

PNEUMONIA

There were seven cases of pneumonia with five deaths in the 50 cases of gunshot wounds. One was diagnosed as lobar and four as bronchial; in two the type was not stated. A gunshot injury to the skull was associated with one while in another fracture of the left humerus and severance of the spinal cord confirmed at laminectomy were found.

Of the 37 stab cases, there were two of lobar pneumonia, one of bronchial, and one of unstated type, with one death.

Of the six deaths, autopsy was performed in three cases and the cause of death was found to be more often the complicating condition rather than the pneumonia. Uncomplicated pneumonia, which seldom occurs in these cases, should be treated by rest and sedation. If the expectoration contains streptococci sulfanilamide should be used. When pneumococci are found, the type should be determined and the proper serum, or preferably, sulfapyridine, should be given. In most of the cases of pneumonia without other complications recovery resulted from this specified treatment.

COLLAPSE OF THE LUNG

Partial collapse of the lung in penetrating gunshot and stab wounds of the chest is not uncommon, and many patients do well with expectant treatment. If other complicating conditions are present, treatment of these associated lesions will take care of the collapse.

PLEURISY

Pleurisy is usually due to trauma of the pleura, and if no infection results, the patient will do well with general rest together with immobilization of the affected side. Either heat or cold may be applied. If infection sets in, empyema usually develops and must be treated as such.

PNEUMOTHORAX

Pneumothorax was an infrequent complication in this series, as there were only six cases. If only a small amount of air is present, no special therapy is required, but if the quantity is large, the air should be aspirated with a syringe or in the extreme cases, a pneumothorax apparatus. A large quantity of air causes compression of the opposite lung as well as the lung of the affected side, with marked embarrassment of

3. Other patients should be put to bed and watched closely, after preliminary roentgenograms have been taken in two planes. Films should be taken with a portable apparatus one to four hours later, depending upon the progress of symptoms.

4. Patients should be typed for transfusion as soon after admission as possible.

5. Perforation of the diaphragm requires no immediate attention unless it is sutured while operating for another condition.

6. Heart injuries are very serious, and repair should be attempted, particularly when tamponage is present.

7. Empyema is a rare complication. When present it is best treated by open drainage.

8. Laceration of lung tissue is best treated by suture or packing, together with exteriorization.

9. Pneumothorax should be undisturbed unless marked, and then air removal or open operation is indicated.

10. Hemothorax and pneumohemothorax should be treated expectantly unless excessive intrathoracic pressure is present or marked hemorrhage is noted, when operation should be undertaken.

11. Hemorrhage was the cause of death in the largest number of cases.

12. There were 25 deaths in this series.

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DISCUSSION

Dr. J. C. Davis (Quincy, Fla.): The question of donors in rural districts and small hospitals is at times difficult. Ingenuity and adaptability of the most versatile surgeon are often taxed to the limit. Many of these patients have a great deal of native resistance and tenacity. To control hemorrhage, the most appropriate approach for upper thoracic injuries is through the periosteal bed of the fourth rib after the rib has been resected, and of the seventh for injuries of the lower thoracic region; from either of these openings as many ribs as necessary may be excised anteriorly or posteriorly to give good visualization and a wound through which to work. After ligation of these vessels, singly or *en masse*, with mattress sutures and removal of the devitalized lung areas, the chest is tightly closed and pneumothorax instituted, as advocated by Dr. Steinke. When the hemothorax is caused by midlung or peripheral bleeding, it is controlled by early (within two, three or four days) aspiration and pneumothorax. Cases are on record in which a high temperature dropped after a great deal of blood was removed, no evidence of infection being present. Where pneumothorax is used the manometer should be the guide. If it is not available, air equal in amount to 300 or 400 cc. more than the amount of fluid removed is used. Some advocate 200 to 300 cc.; one may judge it with the stethoscope and by physical signs; collapse of the lung is noted by an absence of variation. By the early removal of blood and the replacement of the blood with air one is often able to control hemorrhage, arrest secondary and prevent subsequent hemorrhage and infection and shorten the patient's stay in the hospital and his disability. Air compression will not control hemorrhage from the internal large vessels, nor will it control hemorrhage from the intercostals and the internal mammary vessels; these should be doubly ligated.

RÉSUMÉ

Traitement des complications des plaies pénétrantes du thorax soit par armes à feu, soit par armes blanches

L'auteur étudie les complications thoraciques de 87 cas de plaies pénétrantes du thorax. Les perforations du diaphragme ne demandent aucune attention immédiate à moins qu'on ne les suture au cours d'autres interventions. En cas d'hémorrhagie grave, on opérera immédiatement. Les blessures du coeur sont sérieuses; on essayera de suturer la plaie. L'empyème sera drainé. Les lacérations du poumon seront suturées ou tamponnés. L'hémothorax, le pneumo-hemothorax seront traitées conservativement excepté dans les cas très graves. Dans cette serie, il y eut vingt-cinq décès.

a rib resection but died on the twenty-fourth day; autopsy revealed abscesses of the spleen and the subhepatic area as well as the empyema. Autopsy on the second patient showed bronchopneumonia on the opposite side. The third was shot six times through the right chest; autopsy revealed bronchopneumonia on the same side of the empyema, and a dilated stomach. The best treatment is rib resection and open drainage.

Elkin[5] states, "Infection of the pleura and thoracic viscera rarely follows penetrating wounds." He reports 553 cases with empyema in eight (1.4 per cent) of these; all were treated by rib resection and open drainage, with one death.

HEMOPERICARDIUM

Hemopericardium following cardiac injury was noted in four cases with four deaths. The one patient with a gunshot wound underwent operation, the heart and pericardium being sutured. The diaphragm had been perforated and the gastric contents were found in the pleural cavity. The patient died on the operating table from cessation of cardiac action without a laparotomy being performed.

In another case the heart was sutured and the pericardium drained with rubber tissue, the patient surviving 15 days. Autopsy revealed suppurative pericarditis as the cause of death. The other two had left hemothorax with the hemopericardium, one living only a few hours.

Despite the high mortality, these patients should be operated upon when possible.

DIAPHRAGMATIC PERFORATION

Diaphragmatic perforation was found in 10 gunshot cases with seven deaths, and in two stab wound cases with one death. In six cases the diaphragm was sutured, with four deaths, all due to thoracic hemorrhage. Usually perforation of the diaphragm is not serious in itself and does not require immediate suture. The mortality of 66 per cent (8 cases) was due to hemorrhage in six instances, empyema in one, and to death on the operating table while the heart was being sutured in the eighth.

MISCELLANEOUS INJURIES

The abdominal aorta was perforated, resulting in death from hemorrhage, in one case. Two patients died of hemorrhage from large vessels in the thorax.

Usually only one rib is fractured, and this in itself is not a serious condition. When possible, some method of limiting the motion of the side involved is all that is necessary. There were four cases in the series in which a fractured rib was found.

Infected wounds require nothing more than free drainage.

EMPHYSEMA

Emphysema was noted in 10 of the stab cases and in 11 of the gunshot cases (24 per cent of the 87 cases), and none was so extensive as to require special treatment. One patient died in four days of pneumonia, and two of hemorrhage during the first day, but none died primarily from the emphysema. In no instance was there sucking of the wound.

SUMMARY AND CONCLUSIONS

The conclusions drawn from the study of this series of cases and from a review of the literature on the subject are as follows:

1. The patient should be examined carefully immediately upon admission to the hospital; morphine should then be given.

2. Patients with signs of marked hemorrhage or with heart tamponage should be taken directly to surgery for immediate operation. The blood should be saved when possible [illegible] autotransfusion.

LATE MANIFESTATIONS OF SYPHILIS AND GONORRHEA OFTEN MISTAKEN FOR PROSTATIC HYPERTROPHY

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THE urinary disturbances which occur in chronic gonorrhea and in late syphilis are often unrecognized as such and may be mistaken for the obstructive symptoms of prostatic hypertrophy. As these end-results usually occur in late middle life — the so-called "prostatic age" — there is likely to be some confusion in establishing a clean-cut diagnosis of the true etiology. It is therefore probable that many men of advanced years have been subjected to prostatectomy, with its inevitable mortality risks, whereas a more thorough study would have revealed the correct diagnosis and contraindicated the surgical attack on the prostate.

MEDIAN BAR OBSTRUCTION

It is essential to remember that even though there may be a narrowing of the vesical neck, with all its concomitant urinary symptoms, the condition is not necessarily due to prostatic hypertrophy. The prostate may not be grossly enlarged to an appreciable degree, yet there may be a contracture of the vesical neck or a middle bar, which presents all the symptomatic phenomena of adenomatous prostatic obstruction. In many of these cases, the obstruction is purely inflammatory or congestive and not adenomatous; usually it is a chronic manifestation or end-result of a systemic focal infection. These vesical obstructions or bars may be gonorrheal or nongonorrheal in origin; the latter type may have their origin in an infectious focus in the teeth or tonsils or in long-continued sexual practices, such as "withdrawal," which produce the same congestive results. In most instances, however, the bar represents a sclerotic process deriving from a chronic prostato-vesiculitis of gonorrheal origin. Treatment directed to the removal of the infection usually results in the elimination of the obstructing bar and the disappearance of the offending symptoms. It is evident, therefore, that when such an inflammatory bar causes urinary obstruction and retention of urine, prostatectomy is not indicated, even though the prostatic lobes may be found through the cystoscope to be enlarged.

It is always a delicate point in diagnosis to determine whether an obstruction of the normal urinary flow is the result of a congestive bar or a true adenomatous hypertrophy. In great measure, one can be guided by the fact that the hypertrophic obstruction does not respond to measures which may be successfully employed in the congestive type. Before the introduction of intraurethral resection, when prostatectomy was the only successful method of removing the obstruction, this diagnostic differentiation was exceedingly important; today, however, with superior methods of diagnosis and greater perfection of technic, resection is frequently resorted to, irrespective of the essential character of the obstruction. Some urologists, however, still believe that the obstructing tissue can be removed equally well and without any risk whatever by appropriate treatment directed to the original focal cause.

Certain fundamental facts must be recognized in order to avoid serious error. Mere enlargement of the prostate,

ZUSAMMENFASSUNG

Behandlung der Komplicationen von penetrierenden Schuss-und Stichwunden des Brustkorbs

Die Behandlung von Brustkorbkomplicationen, die in 87 Fällen von Brustwunden auftraten, ist dargestellt. Perforation des Zwerchfelles benötigt keine unmittelbare Behandlung ausser eventuell einer Naht während einer Operation für andere Verletzungen. Wenn eine ausgesprochene Blutung vorhanden ist sollte sofort operiert werden. Herzverletzungen sind sehr gefährlich und operative Behandlung sollte versucht werden, speziell wenn eine Herztamponade im Entstehen begriffen ist. Empyem, das eine seltene Komplication darstellt sollte mit offener Drainage behandelt werden. Zerrissenes Lungengewebe sollte mit Naht oder Tamponade behandelt werden. Pneumothorax, Hämothorax und Pneumohamothorax sollten allein gelassen werden ausser wenn sie sehr ausgesprochen sind. 25 von diesen Fällen starben.

SUMARIO

Tratamiento de Complicaciones de Heridas de Puntura y Armas de Fuego de el Torax

El tratamiento de las complicaciones pulmonares ocuridas en 87 casos de herida penetrante del pecho es considerado. Perforación de el diafrágma no requiere atención inmediata al menos que éste se suture cuando operando por otra lesión. Si marcada hemorragía esta presente, debe de operarse inmediatamente. Lesiones del corazón son muy serias; reparación debe de atentarse, particularmente cuando halla taponaje. Empiema, una complicación rara, es mejor tratado con un drenage abierto. Tejido pulmonar lacerado debe ser tratado por sutura y taponamiento. Pneumotorax, hemotorax y pneumohemotorax deben de ser dejado quieto si es posible. En ésta serie hubieron 25 muertes.

RIASSUNTO

Terapia delle complicazioni delle ferite penetranti d'arma da fuoco e d'arma da taglio nel torace

Si considera la terapia delle complicazioni del torace su 87 casi di ferite penetranti del torace. La perforazione del diaframma non richiede attenzione immediata, ammenochè sia suturata mentre si opera per un'altra condizione. Se vi è una forte emorragia, bisogna operare immediatamente. Le lesioni del cuore sono molto gravi; si dovrebbero riparare, specie se vi è tamponage. L'empiema, una complicazione rara, è meglio curata con il drenaggio aperto. Il tessuto polmonare lacerato deve essere suturato oppure zaffato. Il pneumotorace, l'emotorace ed il pneumoemotorace non devono essere disturbati, ammenochè siano molto marcati. In questa serie vi sono stati 25 morti.

FELLOWSHIP DUES, AS WELL AS DUES FOR MEMBERSHIP AND ASSOCIATE MEMBERSHIP, ARE PAYABLE NOW AND SHOULD BE SENT TO DR. BENJAMIN I. GOLDEN, DAVIS MEMORIAL HOSPITAL, ELKINS, W. VA.

CORD BLADDER OF NEUROSYPHILIS

Taking up the late syphilitic phenomena, we have to consider mainly the cord bladder associated with neurosyphilis. One of the difficulties encountered is the fact that the symptoms are not sharply defined in the early stages. There may be a little dribbling after urination or slowness in starting the stream. This is followed by involuntary micturition during sleep, which may be the first symptom to arouse the patient's suspicion that something is wrong. A spinal fluid examination and an investigation of the neurologic factors, especially the reflexes, may be so convincing of the presence of spinal cord disease that radical operative measures will not be considered. In doubtful cases, however, cystoscopy is very useful, but it should not be resorted to as a routine measure except when necessary to make the diagnosis. In spinal cord bladder the vesical trabeculations and the substantial amount of residual urine fully corroborate the serologic and neurologic findings and make the diagnosis beyond question.

It need not be emphasized that true prostatic hypertrophy may coexist with a tabetic bladder; the urologist is then faced with a real problem. Removal of the prostate or intraurethral resection may remove the physical obstruction but it will not materially diminish the problem of bladder distension and its overflow. The bladder still remains atonic and incapable of emptying itself; but removal of the obstruction creates a wider and more accessible bladder neck which might ameliorate the local difficulties somewhat. Systematic catheterization of the tabetic bladder is not good practice because of the infection which inevitably follows; but when infection already has occurred, it is advantageous to have a wider vesical neck rather than a contracted one.

The tabetic bladder may have a very large capacity — 600 to 1,000 c.c. — without causing the discomfort that a much smaller amount would induce in a nontabetic bladder. In the later stages, after infection has been established, the bladder may contract considerably, producing marked inflammatory evidences on the vesical mucosa.

RENAL SYPHILIS

While renal syphilis undoubtedly occurs, direct evidence, that is, the finding of the Treponema, is extremely rare. There is reason to believe, however, that many cases of chronic nephritis have a syphilitic background. The same may be said of cases of chronic cystitis of obscure origin. Atypical ulcerations and gummata have been observed which responded kindly to antiluetic treatment, the diagnosis thus being established.

NECESSITY OF HISTORY AND CLINICAL EVIDENCE

An error that is often made in urologic practice is the acceptance of the cystoscopic picture as final, without due regard to the clinical evidence and the history. Cystoscopy always should be accompanied by complete serologic and clinical examinations. If this is done, it will be found that what at first may have appeared to be prostatic hypertrophy actually proved to be a neurogenic bladder or a median bar congestion of gonorrheal origin. It is extremely rare that the diagnosis of true hypertrophy is not correctly made; a more frequent error occurs in cases of pseudohypertrophy with urinary symptoms which simulate those of true hypertrophy.

REPORT OF CASES

A few cases are herewith reported in which urinary symptoms were considered by competent surgeons sufficiently diagnostic of prostatic hypertrophy to justify recommendation of operation. In most instances of this kind, the diagnosis was made on cystoscopic evidence when examined per rectum, bears little or no relevance to prostatic obstruction. A small projection of the prostate into the urethra at the vesical neck may and often does produce complete retention of urine, whereas a postgonorrheal congested prostate bulging into the rectum may have no obstructive effect whatever on the urinary flow Too often, indeed, does the inexperienced young surgeon assume that the urinary symptoms produced by a congested prostate are due to hypertrophy, because of the bulging mass felt in the rectum. Obviously, a certain degree of the general enlargement of the congested prostate and vesicles necessarily will point in the direction of the urethra and thereby produce the obstructing median bar. By the same token, however, with the decrease in size of the rectal bulge following treatment, a corresponding decrease in size of the median bar will occur simultaneously and the urinary symptoms will be relieved. While this may appear elementary to the experienced surgeon, it is often overlooked.

STRICTURE FROM GONOCOCCAL INFECTION

In addition to the median bar obstruction, we have the less common urinary disturbances produced by a tight stricture of the urethra following gonococcal infection. The problem of a correct diagnosis is much more difficult than that of the congested bar, though the symptoms are practically alike. When it occurs in the "prostatic age," one is inclined to assume that we are dealing with an adenomatous hypertrophy of the prostate. It will be found, however, on further investigation, that certain principles which obtain with true hypertrophy no longer hold true. For instance, in hypertrophic obstruction a catheter of large caliber can be introduced into the urethra and bladder with far greater ease than can one of small caliber It is a cardinal rule in urologic practice to use the largest catheter possible, not the smallest, in order to avoid unnecessary trauma. In stricture, on the other hand, the large catheter is obstructed and in extreme cases, nothing but a filiform bougie can be made to enter the bladder. Following the passage of the filiform bougie, introduction of a cystoscope is impossible without previous gradual dilatation of the stricture. This confirms the strong suspicion of stricture rather than hypertrophy as the basic cause of the urinary obstruction. Gradual dilatation, with or without perineal section, removes the obstruction and with it, the urinary disturbances.

Finally, we must consider the so-called "neurotic" postgonorrheal urinary symptoms. These may be mentioned briefly as increased urinary frequency, especially during the day, stammering and difficulty in starting the stream and marked phosphaturia. The increased frequency may be associated with polyuria, which may be more or less constant. In extreme cases the urine may be voided several times in an hour, but characteristically *only during waking hours.* There is no call to void at night.

The urine may be phosphatic, but hyperacidity is very common and productive of considerable local distress owing to the associated presence of an irritable vesical neck. The latter is usually due to a chronic verumontanitis of gonococcal origin. This form of polyuria responds quickly to alkalization of the urine, when it is acid, with or without the application of local medication to the congested posterior urethra. In these cases, as in cases of median bar obstruction, the urinary antiseptics are generally quite useless with the exception of pyridium, which seems to have a remarkably sedative and analgesic effect on the irritated vesi [illegible] an the associated urethrocy showed 4 plus. The knee-jerk was absent, pupils were unequally dilated, and a slight Romberg sign was present. A history of a penile lesion 20 years previously was elicited. A diagnosis of incipient tabes was made.

He took antiluetic treatment for several years and evidently made a complete recovery. He was active in his business until his death of pneumonia in December, 1938, aged 74.

CONCLUSION

These cases serve to illustrate the main thesis of this paper, namely, that symptoms similar to those produced by hypertrophy of the prostate may be the result of spinal cord disease or chronic gonorrheal prostato-vesiculitis and that before prostatectomy or intraurethral resection is advised, these end-results of syphilis and gonorrhea must be eliminated through painstaking study and examination. The number of patients that will recover without operation and remain well for many years fully justifies the meticulous attention to diagnostic details which this particular study entails.

RÉSUMÉ

Manifestations tardives de la syphilis et de la gonorrhée prises pour une hypertrophie de la prostate

Des symptómes semblables à ceux produit par l'hypertrophie de la prostate peuvent résulter de mâladies de la corde épinière ou d'une prostato-vésiculite gonorrhéique chronique. Avant de recommander une prostatectomie ou une résection intra-uréthrale, il faut éliminer l'existence de séquelles de la syphilis et de la gonorrhée. Le nombre de malades qui se rétablissent sans opération et vivent en bonne santé pendant des années justifie l'étude approfondie exigée par ce désideratum.

ZUSAMMENFASSUNG

Spästadien von Syphylis und Gonorrhoe, die oft fälschlicher Weise für eine Prostatahyperthrophie angesehen werden

Symptome, die denjenigen die von Prostatahypertrophie hervorgerufen werden sehr ähnlich sind, können durch Erkrankungen des Rückenmarks, oder durch chronische Gonorrhoe der Prostata verursacht werden. Daher müssen diese Spätstadien von Syphylis und Gonorrhoe durch exaktes Studium und Untersuchung ausgeschaltet werden, bevor eine Prostatektomie oder introuretrale Resektion vorgeschlagen werden. Die Zahl der Patienten, die ohne Operation wieder hergestellt werden und sich für viele Jahre wohlbefinden geben diesem sorgfältigen und notwendigen Studium seine volle Berechtigung.

SUMARIO

Manifestaciones tardias de sifilis y gonorrea á menudo equivocadas por prostatitis hipertróficas

Síntomas similares á esos producidos por hipertrófia de la próstata puede ser el resultado de enfermeeades de la médula espinal ó próstato-vesiculitis gonorreica crónica. Antes que la prostatectomía ó resección intrauretral es aconsejada, estos resultados finales de gonorrea ó sífilis deben de ser eliminados á traves de estudios y exámenes cuidadosos. El número de enfermos que se curan sin la operación y permanecen sanos por muchos años justifican el estudio cuidadoso que esto requiere.

RIASSUNTO

Tardi manifestazioni di sifilide e di gonorrea spesso malcomprese per ipertrofia prostatica

I sintomi simili a quelli prodotti da ipertrofia della prostata possono essere causa di grave malattia della spina dorsale o gonorrea cronica vescica-prostata. Prima di consigliare chirurgia prostata o risezione intrauretra si devono eliminare i risultati consequenti di sifilide e di gonorrea per mezzo di studio

of prostatic enlargement. These cases are typical of a great many found in our personal records and are presented in order to illustrate the point that we should not depend on the cystoscope alone for our diagnosis. In some of the cases, the trouble was caused by incipient spinal cord disease, in others, by a chronic congestive prostato-vesiculitis; in a few, by a tight stricture of the urethra; in a large number, by marked pathology in and around the verumontanum and vesical neck; in still others, by a hypersensitive vesical neck irritated by a hyperacid urine; and in one case, by a pin-point meatus. The fact that relief followed measures other than the proposed prostatectomy and that this relief has persisted with occasional minor remissions for periods varying from 10 to 25 years, is sufficient evidence that hypertrophy was not the predominant cause of the urinary dysfunction.

Case 1. P. G., a writer, aged 60, was first seen in February, 1927 His complaint was increased frequency of micturition and perineal pain; he voided every three hours, diurnal and nocturnal, for a period of seven or eight months; he had had gonorrhea 40 years previously Prostatectomy had been advised.

On examination, the prostate was found large and hard; the right seminal vesicle was palpable and sensitive to touch, the voided urine was clear, but the expressed prostatovesicular secretion contained much pus. The urethral length was normal; residual urine, 40 cc. The diagnosis was chronic prostatovesiculitis, probably of gonorrheal origin.

Combined vasotomy and vasectomy was advised and performed The result has been satisfactory When last seen, February, 1938 (11 years later), he reported that he was feeling well, with no urinary symptoms.

Case 2 G M., a merchant, aged 35, the father of two children, consulted me in June, 1909. For several months he had noticed occasional pain in the urethra, increased nocturnal frequency, straining at urination and a flow of urine on sexual orgasm. Previous history of syphilis or penile lesion was denied. He admitted a gonococcal infection eight years previously from which he had fully recovered. Prostatectomy had been advised.

The residual urine was 540 cc., and was markedly purulent; no stricture was present; the prostate was large and congested; the knee jerk was absent; pupils were unequally dilated; the Romberg sign was negative; the Wassermann reaction was 4 plus A diagnosis of incipient tabes and chronic prostatitis was made.

Under appropriate treatment the urine became clear, the residuum disappeared and his symptoms improved perceptibly. He was under antiluetic treatment during the next 29 years, with frequent intervals of no treatment, and attended to his business successfully Death occurred in June, 1938, at 64, the cause being coronary thrombosis.

Case 3. L. M., a merchant, aged 58, was first seen in June, 1917. His complaint was difficulty in starting the stream and greatly increased frequency, 10 to 15 times by day and 4 to 6 times at night; symptoms had been present 4 or 5 years and were becoming progressively worse. He left the city and was not seen again until September, 1928, 11 years later (age 69); symptoms were practically the same. A few months previously cystoscopy had been performed in a western city and prostatectomy advised.

Examination revealed a fairly large prostate, soft and boggy in places; the left seminal vesicle was definitely palpable and tender to the touch; gentle prostatic expression brought forth a purulent secretion at the meatus. The five glass test (Wolbarst) showed that the pus in the urine originated in the vesicles. Residual urine (three tests) varied from 20 to 40 cc.; the urethral length was normal. A diagnosis of chronic prostato-vesiculitis was made.

Combined vasotomy and vasectomy was performed in October, 1928. The patient was last observed in November, 1937; he was then 78 years of age. He felt well, the urine was clear, he had no nocturnia and the residuum was 30 cc. He reported occasional attacks of vesical irritation which responded quickly to pyridium medication.

Case 4. E. P., insurance broker, aged 49, married 12 years, the father of five healthy children, was in perfect health up to a year previously when he noticed a weakening of the stream, increased frequency and delay in starting the stream. Tentative diagnosis of prostatic hypertrophy, made by his physician, was corroborated by a urologist who performed a cystoscopy and found large prostatic lobes and bladder trabeculations Prostatectomy was advised.

Examination in January, 1914, revealed clear urine, residuum of less th [illegible] cc., [illegible]ral length normal and the [illegible] larged. The Wass[illegible] then acts as an expanding wedge. Rupture results from sudden strain.

Weber's theory states that the condition is probably the result of an increase in the acidity of the tissues caused by some form of systemic intoxication.

The toxic theory, which is similar, states that healing is retarded or absent due to some toxemia, with resulting acidosis. As a result, catgut absorption takes place at a much earlier date. The true mechanism of the condition in all instances still remains unknown. This is evident from the different opinions expressed by various writers. Maes[10] feels that the cause is not any single factor but a number of different ones. Mason[11] states the problem is one of proper wound healing.

FACTORS INFLUENCING WOUND HEALING

There are several factors, both local and general, that must be considered in wound healing.

1. *Local Factors*:

A. CONDITION OF THE WOUND. Due to various contaminating factors, no postoperative abdominal wound is germ free when closed. Harrison[6] states that all incised abdominal wounds cultured, before closure, will show infective organisms. This is because complete sterilization of the operative zone is impossible.

Under normal conditions, due to the small number of organisms present, tissue resistance will prevent an increase in this infectious process and primary healing will take place. Bacteria cannot increase in normal healthy granulation tissue to the extent of producing infection. Clean wounds, therefore, should never be drained, since such drainage will often result in a marked infection.

Under normal conditions, wound healing will take place in a definite way. According to Maes,[10] there first occurs the formation of fibrin which glues the wound edges together. This is followed by a proliferation of vascular buds and young fibroblasts. After 48 hours the fibroblasts become prominent and soon form adult fibrous or scar tissue. Howe and Harvey[12] state that the tensile strength of a healing wound depends upon the growth and maturation of these fibroblasts. The maximum strength of this healing process is normally reached by the twelfth to the fourteenth postoperative day. One-third of this strength is obtained by the sixth and healing is two-thirds complete by the eighth day.

Any local or systemic condition that interferes with this process of fibroplasia or prevents proper wound edge coaptation will cause delayed or imperfect healing. This will predispose to later trouble. Any tissue, whether it is bone or soft tissue, will heal in a direct ratio to its blood and nerve supply, other conditions being equal. Interference with the nerve and blood supply by undue trauma or by long periods of stretching abdominal tissues with self-retaining retractors, resulting in accumulations of blood and serum, all tend to interfere with proper wound healing.

B. TYPE OF INCISION. The method of abdominal approach still continues to be a debatable question. Dickson states that in longitudinal incisions there is a constant tug of war going on between the two groups of oblique muscles. This will put tension on the suture line and produce an ischemia of the wound edges with necrosis. Wounds that are completely relaxed and have a good blood supply will heal, regardless of the type of suture used.

Sloan[7] feels that the longitudinal type of incision is responsible for wound disruption and postoperative hernia. He recommends the Phannenstiel and McBurney types of incision for lower abdominal approach and claims that no wound disruptions follow this method. There is no question but that transverse

e di esame accurati. Il numero dei pazienti che ricupereranno senza operazione e staranno bene per molti anni guistifica lo studio diligente che vi si richiede.

* * *

WOUND DISRUPTION AND POSTOPERATIVE HERNIA

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A POSTOPERATIVE wound may disrupt completely or partially. When the separation of the various tissues is incomplete, the stage is set for a subsequent postoperative hernia.

Wound disruption, either complete or partial, generally occurs from the fourth to the tenth day following operation. Postoperative hernia, resulting from incomplete wound separation, may become apparent a short time following operation, or months or even years later. Nevertheless, when the hernia does manifest itself, one can be assured that the origin of the condition dates back to time of the patient's early convalescence.

Few patients with postoperative hernia realize that during this period they avoided a wound disruption. Therefore, it is necessary to consider wound disruption and postoperative hernia together, since they are the result of the same causative factors and differ only in degree.

INCIDENCE

The incidence of wound disruption and postoperative hernia is similar. The Mayo Clinic reported in 1919 an occurrence of postoperative hernia of 2.5 per cent in 28,270 abdominal operations. Wound disruption takes place in 1.5 to 3 per cent of incisional wounds[1,2,3] of the abdomen.

Branch,[1] reporting 3,142 cases of hernia operated upon at the Peter Bent Brigham Hospital, found 9.5 per cent to be of the incisional type. Sloan[5] quotes Mason as reporting a percentage of 10.8 in 5,502 hernias operated upon at the Mayo Clinic as being postoperative in origin.

Wound disruption is a formidable condition. The mortality is estimated at 15 to 50 per cent.[6,7,8] Repair of many large postoperative hernias is attended with great risk due to postoperative complications.

Singleton[9] is of the opinion that the condition is preventable, but Baldwin[2] states it will continue to occur until all the causative factors can be accurately measured.

ETIOLOGY

There are several causative theories. The Freeman theory states that due to inadequate closure of the peritoneum the omentum, acting as a wedge, forces its way through the peritoneum. The omentum *finally* becomes *strangulated and* they approximate. Due to their size they cause increased exudation and irritation in the tissues, and because they act as a foreign body, fibroplasia will be delayed. For these reasons they are not desirable.

There is a difference of opinion as to whether a wound should be closed with continuous or interrupted sutures; whether catgut or silk or a combination of both is better; and whether the wound should be closed by the terrace method or with through and through nonabsorbable sutures. Kennedy[1] advocates through and through sutures in wound closure, care being taken that the different tissue layers are properly approximated. He never uses buried sutures except silk, and then only in incisional ventral and umbilical hernias in which wide separation of the tissues is present, and in the obese. He states that neither he nor his predecessor, Dr. Price, has ever had a wound disruption following this method.

In all the operations which I have performed for disrupted wound, the incision has been closed with through and through sutures of heavy silk, and good union has been secured in each case. One cannot but wonder if primary healing would not have occurred had the wound originally been so treated.

Thorek,[21] on the other hand, reports a series of 15,000 cases in which closure was by the terrace method with silkworm gut or wire retention sutures; no eviscerations and no serious difficulties resulted. Some writers do not favor tension sutures at all on the grounds that they predispose to wound infection.

Great amounts of catgut used in closing wounds tend to strangulate tissues and cause tissue necrosis, with subsequent edema, exudation and hemorrhage. It therefore predisposes to infection. Extravasated blood acts as a foreign body and makes an excellent culture medium for the organisms present. These conditions can be prevented by maintaining complete hemostasis; taking care not to include too much tissue in ligatures and sutures; and using the minimal amount of catgut.

The electrocoagulating knife leaves more necrotic and devitalized tissue than is present after a clean incision. Ellis[22] feels that two distinct types of tissue effect can be produced by electrosurgical machines, depending upon the quantities of the current employed. Undue massive coagulation of tissues with charring and subsequent sloughing prevents proper wound healing and predisposes to secondary hemorrhage.

Both Woolsey[23] and Ellis[22] feel that devitalized tissue acts as a nidus for infection and that a wound can never heal until all such dead tissue is removed or extruded.

According to Schuerch,[24] daily irradiations after the method of Coutard can be used preoperatively without materially injuring tissue, but delayed healing and subsequent infection will follow electrocoagulation due to the presence of necrotic tissue. It is estimated that only 60 per cent of electrosurgical wounds heal by primary union.

D. INFECTED AND DRAINED WOUNDS. The greater number of wound disruptions and postoperative hernia occur in infected and in drained wounds.[19] The old rule, "When in doubt, drain," was changed several years ago to "Do not drain if there is a doubt." With a better understanding of the probable futility of abdominal drainage, fewer drains, in the future, will be used. When drainage must be used, drains down to, but not through, the peritoneum will probably be more effective and should lessen the incidence of wound disruption and future hernia. When intraabdominal drainage is necessary, a stab wound type, if possible, is more desirable.[1, 2] One is often surprised in this type of case to see how much more rapincisions close more easily and that tissue approximation is completed under less tension because of the absence of the lateral pull of the posterior sheath of the rectus muscle and of the skin. Unfortunately, while transverse incisions may be more anatomically correct and easier to close, they do not give as good exposure, which is so necessary for good surgery. Extension of the operative wound is more difficult with transverse incisions and the time required to enter the abdomen is longer. The majority of surgeons still favor the longitudinal type of incision with the exception of the McBurney type for simple appendectomy.

The fibers of the posterior sheath of the rectus muscle run transversely and are without question one of the most important structures to be considered in wound closure. In longitudinal wounds the posterior sheath often splits when closure is attempted due to the lateral muscle pull. This can usually be prevented with a mattress type of suture.

McNealy and Lichtenstein[14] aptly compare the transversalis fascia and the peritoneum as the inner tube of the abdomen and the oblique muscles and external fascia as the casing. They stress the careful approximation of these tissues if good repair is to be expected. Sloan,[5] however, states that tissue repair cannot be expected if tissues are destroyed and replaced immediately with some mechanical substitute.

The probability is that the type of incision is not a great factor in wound healing provided careful closure of the different tissue layers is made.

The location of the incision is also probably of no great import. Some writers[15,16] report a higher incidence of wound difficulties in upper abdominal incisions, while others[17,18] feel that disruption and hernia are more likely to follow lower abdominal wounds. Unless wounds are drained, the incidence will probably be similar.

Meleney[8] states that 15 per cent of all incised abdominal wounds become infected. Such wounds will, of course, be more likely to cause subsequent trouble.

C. SUTURE MATERIAL AND METHOD OF SUTURING. Any condition or material that causes an increase in wound exudation will delay healing by retarding fibroplasia. Catgut will do this and may therefore increase the possibility of wound infection in a field that is not absolutely sterile. This is especially true of the larger sizes of catgut. Realizing this possibility and the fact that a suture need be no stronger than the tissue it approximates, one should use the smaller sizes of catgut.

McLeney[19] states that 0 chromic catgut has a greater tensile strength than the tissues in which it is used. Larger sizes are therefore not necessary or desirable. The advantage of catgut, according to Kootz,[20] is that it is an absorbable material. In the presence of infection it does not act as a permanent foreign body with the danger of sinus production. The disadvantage of catgut is that one can never know how rapidly it will be absorbed.

Silk is a nonabsorable suture. It will remain in the tissues indefinitely and causes practically no tissue reaction. However, in the presence of infection, it acts as a foreign body. When silk is used, a special technic is necessary for satisfactory results. Some writers condemn the use of silk and catgut together. Others do not hesitate to use both in the same operative field. When silk is used, the smaller sizes are desirable. Interrupted sutures should be used instead of a continuous suture. When silk is sterilized, it should be boiled and boiled but once. Boiling it in a light mineral oil will apparently increase its tensile strength. It should never be used in infected wounds.

Kangaroo tendon sutures have the same faults as catgut. [illegible] much stronger than neces ful in patients not suffering from interference with the return blood supply.

Kosdoea[27] states the thyroid gland plays an important part in wound healing and Eitel and Biecher[28] have found that the thyrotropic hormone of the anterior pituitary to be of value.

TREATMENT

After the wound has disrupted, certain definite procedures are necessary. Depending upon the patient's general condition, the wound should be resutured or treated by tamponade and strapping.

If it is to be sutured, the abdomen should be prepared by scrubbing with green soap and water. Irritating antiseptics of all kinds should be avoided. A protruding omentum, if strangulated, should be removed. If it is not strangulated, it can be gently washed with salt solution and replaced. Any protruding intestine should be treated the same way. Due to edema in the wound edges and the difficulty of recognizing accurately the different wound layers, it would seem that a through-and-through type of suture closure is better. Heavy silk, silkworm gut or wire may be used. Silk is less likely to cut through tissues than are the other materials. It is the opinion of some that closure by the terrace method should be again attempted. Strange as it may seem, hernia following wound disruption is relatively rare, regardless of the method of closure.

In some instances the patient's general condition does not warrant any surgical procedure. These patients and those with grossly infected wounds should be treated by the tamponade method. The technic is simple. It consists merely of cleansing and packing the wound with gauze and strapping together the wound edges with adhesive plaster. McCauliff[29] advises this type of procedure in all disrupted wounds

When postoperative hernia begins, it is often a typical protrusion of the intra-abdominal contents through the inner layers of the abdominal wall. Later, as it becomes larger, it assumes the characteristic features of the well developed hernia. The neck of the hernial sac is relatively small. The incidence of obstruction depends upon the size of the neck of the sac. Postoperative hernia differs somewhat from other types of hernia in that no true sac is present. In this type the whole region of the scar spreads and the peritoneum is often closely adherent to the skin, with no intervening tissues.

The technical difficulties in the repair of these conditions become greater as the hernia increases in size. Repair of very large hernia is sometimes impossible. With a small hernia, exposure is usually easy, the sac is often removable and some form of fascial imbrication is possible. Interrupted sutures are especially desirable in these cases.

Rothschild[30] has suggested an ingenious type of closure for large hernia in which the peritoneal cavity is not opened. No attempt need be made, therefore, to free adhesions. Such an operation causes less shock and lessens the risk of peritonitis and postoperative ileus, which are common complications in this type of surgery. In this operation it is necessary partially to denude the rectus muscle. Sufficient time has not elapsed to determine whether or not healing will be impaired by such a procedure.

Kootz,[31] reviewing Gallie and Le Mesurier's work, advises autogenous grafts of fascia lata or preserved animal fascia. He recommends the basket weave type of closure for all areas that cannot be approximated. When this method of closure is used, the approximation of the grafts must be sufficiently close to prevent the occurrence of hernia between the graft strips. Preserved fascia, while not as ideal as the autogenous graft, is much superior to both heavy catgut and kangaroo tendon. The fascia grafts will eventually become incorporated into the tissues. Catgut and kanidly the incisional wound will heal as compared with the stab wound. The incisional wound, in these cases, will often heal as normally as any uncomplicated wound. When drains are placed through the incisional wound, care must be used not to strangulate tissues by too tight suturing around the drain and to reinforce the suture line at these places. According to Glassner,[13] the associated infection that occurs, subsequent to drainage, causes an early absorption of catgut and is also responsible for the early slipping of knots. This is concurred in by Harnagel,[25] who deplores the use of unnecessary drainage and also comments on the difference in the rapidity of healing in undrained and drained cases.

Hartzel[15] is of the opinion that drainage through an operative wound favors disruption or subsequent hernia by not allowing proper tissue approximation. He quotes Bryce, McFetridge and Jenkins as being of the same opinion.

Excessive wound tension is unquestionably a factor in proper wound closure. Glassner[13] states that all other factors are secondary. When postoperative abdominal tension becomes sufficient, the fibers of the posterior sheath of the rectus muscle are the first to break. This is followed by a separation of the peritoneal edges and normal healing is prevented. Baldwin[2] recommends closing the peritoneum and posterior sheath of the rectus muscle with mattress sutures in order to give these tissues better support.

Sloan[5] feels the length of the incision increases the risk of inefficient closure in direct ratio to its length. Other writers state that this makes no particular difference.

2. *General Conditions*:

Wound disruptions may occur at any age from early infancy to old age, but they are more likely to develop in the age extremes. Recently I have had this experience in a six-weeks old emaciated baby suffering from pyloric stenosis. Secondary closure with through-and-through silk sutures was followed by good union.

Some writers[16,13] maintain that the condition occurs most often in the age that carcinoma exists, namely, the third to the fifth decades. It must be remembered that more surgery is done during this period than at other periods. However, wounds do heal more slowly in the presence of systemic disease (carcinoma, anemia and cachexia, jaundice and diabetes) and in cases of marked dehydration and general debility.

Deficiency in vitamin C, hypoproteinemia or an allergic condition may be a contributing factor to delayed or imperfect healing. Hartzel and Winfield[15] quote Wolbach and Howes as being of the opinion that many patients, due to vitamin C deficiency, lack the ability to produce and maintain the intracellular substance necessary to produce healing. This tendency is noticed in the early spring and fall, when vitamin C is supposed to be at its lowest ebb. The condition seems to be more frequent in Northern than in Southern races. Animal experiments show that animals fed on a high protein diet have more rapid and complete wound healing than those subjected to low protein intake.

Postoperative coughing, vomiting, abnormal straining and distention, especially the latter, may all be causative factors. This is especially true in debilitated patients and in the obese. Since the Wagensteen tube has been used for bowel decompression, cases of abnormal postoperative distention have become a much less serious complication.

Fine and Hermanson[26] have recently reported the relief of abdominal distension with pure oxygen inhalations, which they state will eliminate the main factors of distension, namely, h [illegible] nitrogen. This method [illegible]

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RÉSUMÉ

La rupture des plaies et des hernies post-opératoires

Les complications sont dues à différentes causes, locales et générales. Le siège et la nature de la plaie et la nature du materiel de suture sont des facteurs d'importance secondaire. Il importe de bien comprendre les facteurs de cicatrisation normale et d'éloigner tout ce qui peut retarder l'union des plaies. Les plaies infectées et les plaies nécessitant le drainage recevront des soins minutieux. Les plaies seront resuturées ou tamponnées et les marges rapprochées par des bandes d'emplâtre adhésif selon l'état général du malade.

ZUSAMMENFASSUNG

Aufbrechen der Wunden und postoperative Brüche

Aufbrechen der Wunden und postoperative Hernien werden nicht durch eine einzige Ursache, sondern durch mehrere, verschiedene Gründe, die sowohl örtlicher, wie auch allgemeiner Natur sein können, hervorgerufen. Die Art und Lage der Wunde und die Art der verwendeten Not materials sind von sekundärer Bedeutung. Die Kentniss der normalen Wundheilung und der sie verzögernden Faktoren ist äusserst wichtig, Infizierte und drainierte Wunden müssen besonders beobachtet werden. Die Wunde muss wieder genäht oder mit Packung und mit Heftpflasterverband behandelt werden, je nach der allgemeinen Verfassung des Patienten.

SUMARIO

Rotura de heridas y hernias posoperativas

Roturas de heridas y hernias posoperativas tienen muchas causas diferentes, ambas local y general. La localización y tipo de la herida y la clase de sutura usada son factores de segunda importancia. Un conocimiento de la cicatrización normal de heridas y de los factores que retardan dicha cicatrización es imperativo. Heridas infectadas y con drenage deben de recibir atención especial. La herida debe de ser resuturada ó tratada por taponamiento y aproximacion con esparadrapo, dependiendo en la condición general del enfermo.

RIASSUNTO

Ferita Fratturante ed Ernia Postoperative

Ferita fratturante ed ernia postoperative risultano da non una, ma da parecchie cause diverse, ambedue locali e generali. La posizione ed il tipo di materiale di sutura usati sono fattori d'importanza secondaria. Una conoscenza di guarire una ferita normale e dei fattori che ritardano tale guarigione è imperativa. Le ferite infettate e prosciugate dovrebberro ricevere attenzione speciale. La ferita si dovrebbe risuturare o curare da tappi di cotone o d'altri tamponie e di taffettà, dipendente dalla condizione generale del paziente.

garoo tendon will remain as foreign bodies until they are absorbed.

Schlesinger[32] advises against opening the abdomen or attempting to remove large hernial sacs. Such a sac, he states, is a good pad to be used in the reconstruction of the abdominal wall. The type of operation he recommends is very similar to that suggested by Rothschild except for a special technic used in approximation of the fascia and muscle. In the repair of these wounds interrupted and mattress types of sutures are desirable, regardless of what kind of suture material is used.

General or spinal anesthesia are preferable because local anesthesia can only add extra insult to tissues that are largely severely taxed.

SUMMARY AND CONCLUSIONS

1. Postoperative separation of abdominal incised wounds, whether complete or incomplete, is an accident attended by serious possibilities.

2. Wound disruption and postoperative hernia result from no one, but from several different causes, both local and general.

3. The location and type of wound and the type of suture material used are factors of secondary importance.

4. A knowledge of normal wound healing and of the factors that delay such healing is imperative.

5. Infected wounds and drained wounds should receive special attention.

6. It is to be hoped that with a better understanding of these conditions, wound disruption and postoperative hernia will become less frequent and will eventually be eliminated.

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the future is secure so long as our own living flesh links with the hands of those who have gone and those who are to come.

Let us go forth from this meeting resolved to teach and be taught.

We who are the seniors—let us seek out the young man and set his feet more firmly on the upward path.

You who are young—put forth your hand for the guidance that is your birthright.

Thus—and only thus—shall our ancient debt be paid.

Thus—and only thus—shall we ever know *that progress* which Victor Hugo so truly calls "the onward stride of God."

THE VENICE ASSEMBLY

(Impressions: from the Notebook of the Editor)

CHURCH bells and the sea! A new Venice come to the judgment of men whose *pied-à-terre* is the surgical amphitheatre . . .

This quiet Sunday morning in a little Florida town, the pause between hours, days, weeks of work and a few breaths of communion with fellow surgeons in a conference strategic for the war we wage against disease, deformity and death. . . . Men of many climes and varied specialties, finding a common soul in the labors of mercy and humanitarianism. . . . The *leit-motif* . . . *L'esprit de corps*. . . . Three men on whose broad shoulders rested the principal burdens of the mechanics of the Assembly—Fred Albee, Fred Douglass and Charley Arnold.

—o—

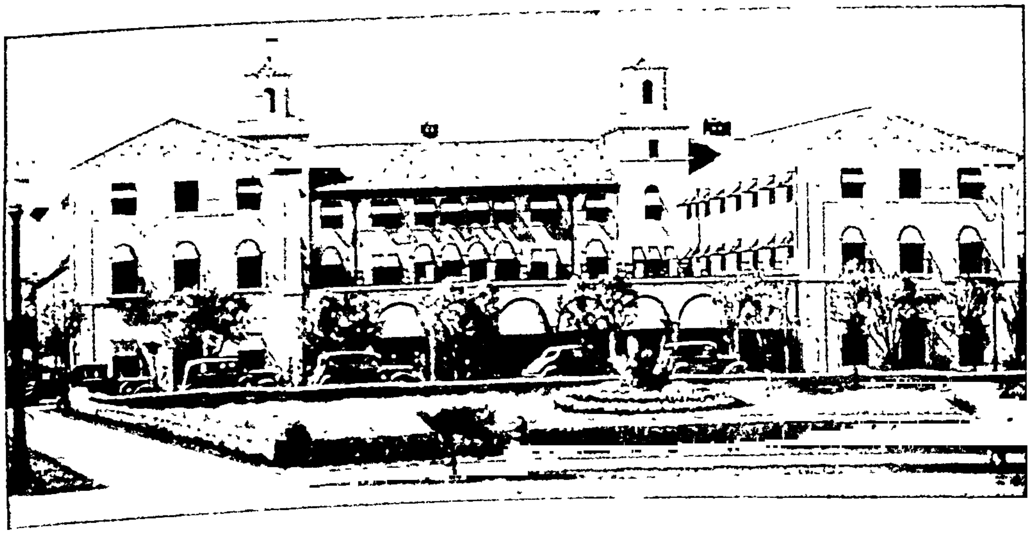
Sun and the salt sea breeze! A town figuratively as clean as an operating amphitheatre

Breakfast—coffee, hot and rich and clear as amber, fruit and cream, and the famous citrus juices and fruits of this golden land bravely set forth in the face of a record "freeze" to chill the courage of [illegible] . . . Play [illegible] What [illegible] scribe?

"Plenty of fresh air!"

We got it.

The Albee airport and a professional air meet. Daredeviltry *in* the ether, not *with* it, as we surgeons sometimes see! Art Davis in a plane. . . . A rube in the tall town cranes not so breathlessly. . . . How does a bomb drop? We were shown! How much of a gymnast can a man be



with his plane? How much a part of him is this wonderful mechanism of silk and aluminum, steel and equilibrium? . . . That's the secret, yes—*equilibrium*—Europe has lost it—EQUILIBRIUM—the *sine qua non* of the surgeon's skill—the mirror of the eternal balance—that elusive endowment that makes it possible for men and their scalpels to enter the sacred provinces of God and Nature . . . *equilibrium*—once lost, disaster follows, to mind, to body, to brain, to soul, to men, to undertakings, to nations. . . . The sunny south a bit out of balance herself—chill frost—great thoughts, perhaps, but not great enough to forefend the aftermath of gazing too highly upward —extra systoles and cervical myalgias.

—o—

Blessedness of hot water . . . clean linen. After all, there are anodynes of semi-preciousness—and resort countries abound in the good masseuse,

ADDRESS OF PRESIDENT FREDERICK M. DOUGLASS AT CONVOCATION OF FIFTH ANNUAL ASSEMBLY, U. S. CHAPTER, INTERNATIONAL COLLEGE OF SURGEONS

THERE is a debt that all of us have incurred to possess the title and the honored estate of the doctor of medicine.

It is the debt we owe to the men who touched our common clay and shaped it to the point of view that fits the man of medicine to labor at the *very threshold of God*

They taught our eyes to see.

They taught our ears to hear.

They taught our brains to sift and weigh the evidence of eye and ear and to seek out hidden meanings beyond the frontiers of established knowledge.

They taught our hands to do the reasoned bidding of our brains, and last of all—and best of all—they taught our hearts compassion and forbearance

Our debt is to these men but it cannot tbe paid as other debts are *paid. We must pay it* as they in their turn paid their debt to the men who did for them what they did so well for us. We must teach new eyes to see, new ears to hear, new brains to think incisively, new hands to serve, new hearts to be steadfast and true to the ancient trusts that have made the physician the first friend of man.

Gentlemen, medicine in our day walks upon the heights. We have made mighty conquests and our forces are arrayed for greater conquests still.

The least of us possesses knowledge and skills that would have been denounced as witchcraft a hundred years ago.

We have filled whole libraries with the store of our vast new knowledge. We have set up marvelously detailed systems for the swift exchange of information, and there is no field of medical or surgical endeavor that lacks today for a special organization to serve its special needs. Never before has medicine had such wonderful machinery for doing its work in the world.

And yet—

Yet, after all, *it is only machinery, and* we must not let ourselves fall into the trap of over-reliance upon system and organization, however persuasive and fool proof they may seem to be. There is too much at stake—not only the profession of medicine as we know it, but the fate of all those who look to medicine and surgery for deliverance from needless suffering and needless death.

Machinery is not enough.

It can thrust facts before our eyes, but it cannot make us see truth.

It can fill our ears with case histories and conclusions, but it cannot teach us to listen for and hear the faint whisper of individual departures from a hypothetical standard.

Machinery can fill our brains with information, *but it cannot create wisdom, and there is no* machine that can deliver a lecture on ethics so telling as the frown or smile of a living man whose blameless life has given blood and substance to the code of Hippocrates.

No—all these things are the province of the teacher, not of machinery; and when I say "teacher" I mean—

I mean YOU, my colleagues, ALL OF YOU.

I never knew a doctor of medicine so poor in spirit and accomplishment that he did not have *something* to add to the treasury of medicine or something to say for the guidance of others walking the long hard way that every doctor must follow.

I never knew a doctor so rich in wisdom, skill, experience, and ethical excellence that he could not learn new lessons by making common cause with lesser men.

There is no monopoly of ability and skill.

The best of us can learn from the least of us, and what we learn by putting our heads together and taking common counsel; what we learn by looking at our own failures in the light of another's success; what we learn in the electric atmosphere of the open forum—all that is the learning which brings the valleys of medicine closer to the soaring peaks of medicine and will level them for the greater good of mankind.

Gentlemen, it is not for legislators and mobs to say what the future of med[illegible] shal[illegible]

We are the masters of [illegible]

the son has invented. . . . Dr. Goldsmith has found a new way of reducing the temperature of water to below freezing. . . . A new sponge demonstrated by Oscar Nugent. . . . Chevalier Jackson and Brooke Bland of Philadelphia in a lengthy Socratic dialogue in an angle of the patio. . . .

Before Steinke of Ohio, Jepson of Sioux City, DeMuth of Vancouver and Bill Carson of Milwaukee, McCormick of Ohio mounted on a rostrum, holding them spellbound. . . . President-elect Desiderio Román, smiling broadly and loitering at the Bell and Howell booth with much to say to Moses Behrend. . . . Everybody happy, everybody interested, everybody *friendly*. . . . A bit beyond, Earl Craig of Philadelphia, Tom Harris, Golden, Cannaday, terribly interested in each other's opinions.

—o—

SNAKES!

What a symposium that was on snake venom!

Came recess. Texas "Jim" Mitchell took out one of the giant rattlers. Old Croatalans is a foul, scaly, rattling length at his ever indecent best.

By the back of the neck those expert fingers of Texas Jim's grasped the rattler.

Out flashed the fangs! Deftly beneath the venom-dispensing dentury went the little white glass beaker. Drip! Drip! Venom plus venom. The snake wriggled. A visiting surgeon, as clean in a white linen suit and the aura of his sacred profession of healing as the snake was dirty in his writhing length and his lethal faculties, took a firm hold on the long, strong buttony tail of Eve's tempter's scion.

Quicker than a flash under visible hyperperistalsis the rattler ejected a stream of ochre yellow all over the white linen suit, in a great gush from his caudal extremity.

With equal promptitude the surgeon dropped the south end of the snake.

"Good Heavens! Look at this!" he cried.

Said Texas Jim, "Doctor, you would do worse if you were in that poor snake's fix." And he pointed to the reptile in all solemnity.

—o—

The last day of the Congress, Wednesday.

Every man hated to go . . . so much more we had to tell, to learn . . . and *we liked each other* The weather was most polite. As a background to our grief, at evening the skies wept. It rained, and rained. The temperature dropped. The tempo of the sessions was pepped up to raise it! From the rostrum we heard, among others, Dr P Brooke Bland, and Dr Desiderio Román, of Philadelphia; Dr. Clarke Brooks, of Detroit; Dr. André Crotti, of Columbus and Dr. E. J. McCormick, of Toledo.

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At night the convocation.

Those admitted into the College from the United States Chapter and from foreign chapters were received into our midst. On the scrolls of the organization their names were inscribed. "Marshall" Golden of West Virginia led the Procession of the Convocation, with its inexpressible appeal.

And it was Golden who presented the United States Chapter with a magnificent mace, as rich in its beauty of design and workmanship as in its inherent and significant symbolism.

—o—

Afterwards the assembly about a great, roaring, flaming driftwood fire, holding in its heart the age old sign of material comfort to mankind. *If only I had had my camera with me!*

For silhouetted against that red and orange background were three real men of the day, three persons who have labored so hard in the pursuit of surgical ideals that the impress of their efforts has been perhaps the mightiest factor in the remarkable progress of the International College of Surgeons—Crotti, Albee and Arnold! I stood there, held by my own emotions, when I felt a hand on my elbow. I turned to see a vaguely familiar figure of a man with a diploma under his arm. As my senses focused on his face, recognition dawned. I knew him now—Sether, Rush, 1904. We grasped hands firmly.

"The years have been kind to you, Max," he said with great generosity.

Through my mind ran the remembrance of his own handsome countenance nearly forty years ago, free from the furrows of time and service and self sacrifice.

"You, too, my friend," I answered. "You, too, the fates have treated with consideration."

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There were, of course, the inevitable postmortems, now that the convention was closed *officially*. There was packing to be done. Last minute social amenities to be achieved. The customary rush to make the train, that is as much the part of a journey as the actual conquest of distance. And homeward bound, the savour of it all to be rehashed and digested.

Lucky for me, I am fond of hash—or ragout or goulash, whatever you wish to call it. At any rate, it is an international dish—like a good surgeon.

ADMITTED TO FELLOWSHIP — UNITED STATES CHAPTER

Dr. Ivan Allfred, Great Falls, Mont.
Dr. Leonard Averett, Philadelphia
Dr. Horace Mitchell Baker, Lumberton, N C
Dr. Hamilton Isham Barnard, Denver
Dr. Edgar Vernon Benbow, Winston Salem, N. C.
Dr. Flint Bondurant, Cairo, Ill.
Dr. Jesse Wilbert Bowers, Fort Wayne, Ind.
Dr. George Van Ingen Brown, Milwaukee
Dr. Robert Critten Davis, Great Falls, Mont
Dr. Frederick G. Dyas, Chicago.
Dr. Thomas Lawrence Doyle, Philadelphia.
Dr. Harry Harding Everett, Lincoln, Neb.
Dr. Haynes Jordan Freeland, Denver.
Dr. Paul Gallagher, El Paso, Texas
Dr. John Howard Garberson, Miles City, Mont.
Dr. Alfred Myron Glickman, Springfield, Mass.
Dr. Edward Lee Harvey, Denver.
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Dr Francis Edward Keenan, Great Falls,
Dr William Henry Lawrence, Summit,
Dr. Joseph Sebastian Lundhomm, Rockfor
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Dr. Paul Conley Furgason, Indianapolis.

ADMITTED TO ASSOCIATE MEMBERSHIP—UNITED STATES CHAPTE

Dr. Robert Hannon Fitzgerald, Leadville, Colo.
Dr. Robert Lucian Hamilton, Marysville, Calif.
Dr Bernard Anthony Karwiski, Toledo.
Dr. William Winslow Biedemann, Toledo.

ADVANCEMENTS—UNITED STATES CHAPTER

Dr. Edward A. Lebold, Salem, Ore., Associate to Member.
Dr. Andre Blythe Carney, Tulsa, Okla , M ber to Fellow.

ADMITTED TO FELLOWSHIP—INTERNATIONAL COLLEGE

Dr. Otto DeMuth, Vancouver, British Columbia, Canada.
Dr. Enrique Gonzales Pastor, Concepcion, Chile.
Dr. Alejandro Cerisola, Mexico City, Mexico.
Dr. Antonio Cornillon, Mexico City, Mexico.
Dr. Manuel F. Madrazo, Mexico City, Mexic
Dr. Esteban Paulín, Queretaro City, Mex
Dr. Rafael Macías Peña, Aguascalientes Mexico.
Dr. Aquilino Villanueva, Mexico City, Mex

HISTORY OF THE COLLEGE AND GUILD FUNCTIONS

RADIO ADDRESS BY

CHARLES ARNOLD, M.D., F.I.C.S.
LINCOLN, NEBRASKA

LADIES and gentlemen of the radio audience, and fellow members:

In Switzerland, the oldest Republic in the world, on the shores of Lake Geneva, in the historic Peace City of Geneva, the INTERNATIONAL COLLEGE OF SURGEONS was founded in 1935.

The original body was a group of Regents, selected from the leaders in the surgical profession, from every country of the civilized world. It was the aim of the Founders to require these Regents, not only to assist in the governing of the INTERNATIONAL COLLEGE OF SURGEONS' Body, but to see to it that national chapters were formed in their respective countries and districts.

Because of the generally upset conditions in the world, brought about by the ravages of war, it has been impossible to carry out to the fullest extent this original conception of the Founders.

We are pleased to state, however, that in a number of countries of the world, among which are Mexico and the United States, outstanding chapters have been organized, and are functioning according to the purpose laid down in the original Constitution.

In December 1936, there was a meeting of sixty-three Regents from the United States at the Academy of Medicine Building, in New York City, who launched the United States Chapter.

These Regents elected officers, and appointed Committees, and charged them with the drafting of a Constitution and By-Laws to govern this group in the United States. The duties with which they were charged have been carried out, and the Chapter was properly incorporated.

The first Scientific Meeting of the United States Chapter of the INTERNATIONAL COLLEGE OF SURGEONS was held at the Waldorf-Astoria Hotel in New York City in June 1937.

At this meeting, authorities in their respective specialties presented papers of intense interest and the discussions following were indicative of the appreciation of those in attendance.

In February of the following year, under the able chairmanship of Dr. Julien O. Pate, of Tampa, Florida, an outstanding Scientific Assembly was held which will long be remembered.

In October 1938, under the direction of the Philadelphia Committee, the THIRD ASSEMBLY of the College was held in that city. Besides the excellent scientific papers, a number of fine clinics were held at leading Philadelphia hospitals.

At the Philadelphia meeting members and delegates present [illegible] the proposed changes [illegible]

These changes definitely eliminated any objectionable features which may have been present in the original draft, and placed the organization in a position where no one could doubt its ideals and purposes, and the unselfish desire of its leaders to assist in raising the standards of surgery.

In May 1939, the FOURTH ASSEMBLY of the United States Chapter was held in New York City in conjunction with the first Scientific Assembly of the International Body. At this meeting, there were representatives from 25 foreign countries, and an outstanding scientific program was presented by these visiting surgeons, together with clinics at the leading New York hospitals.

At this meeting, headed by Ambassador Nájera and Dr. Manzanilla, the newly formed Mexican Chapter, composed of outstanding members of the Mexican Surgical Society, were admitted to the central organization.

We are gathered this week in Venice, Florida, at the Florida Medical Center, with Dr. Fred H. Albee and Dr. Julien C. Pate as hosts, to participate in the FIFTH ASSEMBLY of the United States Chapter.

Our program is graced by outstanding men from every part of the United States, together with representatives from Canada, Mexico, and Cuba. The registration at this Assembly far exceeds that of any of the preceding meetings.

The formation of Postgraduate Study Guilds was early recognized as one of the essential departments of this institution.

The Founders of the INTERNATIONAL COLLEGE OF SURGEONS realized, as we all do, that there are many adequate surgical societies which have for their aim, as we do, the advancement of the art and science of surgery. One of the principal aims of the Founders is to perpetuate and afford the opportunity to gain the necessary knowledge to better serve humanity. In fact, since its inception the Founders aimed that this should be made the primary and principal function of the College.

In order to do this successfully, it was unanimously decided that Postgraduate Study Guilds should be instituted in every State in the Union, and in subdivisions of countries where national chapters were formed. These Postgraduate Study Guilds were legally authorized on July 18, 1937 and were made a part of the International policy at the Philadelphia International Executive Assembly in 1938.

By direction of the President of the United

States Chapter, the Regents in their respective states were charged with the duty of assembling and electing from their midst a President, Secretary, and Treasurer, and such other Officers as they might require to function according to the By-Laws of the Parent Body.

After this organization meeting, they were further charged by the President to hold at an early date surgical clinical meetings, at which gatherings, members residing in respective localities to the members assembled were to present clinical cases and perform operations.

Those presenting cases would be required to read the record of each patient, showing that a careful history had been taken, and that logical reasoning was employed to arrive at a correct diagnosis. The operating technic of the presiding surgeon was to be studied, and his postoperative treatment was to be set forth by him for the consideration of those present.

Following the clinical work of the morning, the Members were to retire for lunch and to continue their meeting by a frank discussion of what they had observed throughout the morning hours. Out of these discussions, it was hoped, would result helpful and constructive criticism which would assist toward the attainment of our ultimate goal—better surgery, better surgeons, better service to mankind.

These meetings are to be held at least twice a year, and are to be supplemented by more frequent meetings of study groups in the respective cities, or communities, and are to be conducted in whatever manner the Officers and Members may decide.

We are pleased to announce at this time that there have been in operation for over a year, Postgraduate Study Guilds in a great number of the states of the Union. Indiana was the first to become active, with surgeons from Pennsylvania forming their nucleus only a few days later; they in turn were followed closely by West Virginia.

Colorado surgeons had organized their Guild, and since its organization, they have added to their number several professors from the University of Colorado School of Medicine.

New Mexico surgeons organized their Guild in 1939 and thus had made a contribution to the elevation of surgery in that State.

The Surgeons of different sections of Ohio who are members of the College have been meeting as Study Clubs for over a year.

New England has only lately been organized and this unit is rapidly developing.

Other States are actively following the example of these already enumerated. And I am informed by President Douglass that inquiries are constantly reaching his desk from Fellows and Members of the College in other States, throughout the country, requesting information and asking authority for the formation of Guilds in their districts.

The Constitution and By-Laws provide for three principal classes of membership: Fellows, Members, and Associate Members.

Fellows of the College are those who have attained a high degree of efficiency, and are so recognized by the profession. They must be men of unusual and outstanding ability, and shall have contributed to scientific literature, and shall have made contributions in other ways to the art and science of surgery. They must, of course, devote all their time to surgery, and be looked upon as leaders in surgery, not only in their respective communities, but in their State, and throughout the country.

The Member of the College shall be one who is younger in the service, and who has not yet reached that grade of efficiency demanded of a Fellow. He shall be known for his industry and his earnest desire to improve himself and increase his capabilities.

Associate Membership takes in that larger group of young men who are seriously and earnestly endeavoring to qualify for that high position which they have set out to attain.

It is to these men that the International College of Surgeons extends a helping hand and would have them feel that this organization has been truly created as a College, to function as a College *per se*, in order that they might be better able to surmount the obstacles, which come to everyone, but particularly to the younger men.

The United States Chapter of the International College of Surgeons has authorized the establishment of a Postgraduate Endowment Fund to receive bequests, gifts, and donations, the income from which will be used to send Professors of Surgery, from various Universities, as Instructors in their respective specialties to meetings of the Postgraduate Study Guild.

Thus it is to be hoped that the efforts of the Officers, Fellows, Members, and all Associates of the College will bring about the realization of the program we have just outlined.

It is further to be hoped that this organization, unique in this respect, it being the only surgical organization in the world which provides such a program, and which has no conflict with any other Society or College, and which desires to assist any other Society or College in its program, may have the satisfaction of assisting these younger Surgeons of whom we have in the past demanded much, but have helped little, in attaining that degree of efficiency which will promote them to the class of Members and enable them to qualify and graduate to Fellowship.

SPRING MEETING OF NEW ENGLAND GUILD

The first spring meeting of the New England Guild, International College of Surgeons, was held March 27 at the Hospital of St. Raphael, New Haven, Conn., under the direction of the New England Activities Committee.

Surgery was observed from 9:30 to 12:30. Following luncheon, the afternoon program began with short addresses by Dr. G. S. Foster, chairman of the Activities Committee, and Dr. Joseph Linde, president of the Connecticut State Medical Society and Health Officer of New Haven.

Twenty-minute talks were given as follows: "Appendicitis," by Dr. James A. Gettings, chief surgeon of the Hospital of St. Raphael; "Spondylolisthesis," by Dr. Dennis O'Connor, attending orthopedist to Grace Hospital, New Haven, and assistant attending orthopedist at the New Haven Hospital; "Partial Intestinal Obstruction," by Dr. Andrew McQueeney, member of the surgical staff of St. Vincent's Hospital, Bridgeport, Conn.; "Gastric Surgery," by Dr. Edward Kirschbaum, surgeon to the Waterbury Hospital and medical examiner for Waterbury, Conn.; "Gall Bladder Surgery," by Dr. A. J. Mendillo, formerly chief surgeon of the Grace Hospital, New Haven; "Head Injuries," by Dr. William German, professor of surgery at Yale Medical School; and "Pathology," by Dr. Robert Nesbit, pathologist to St. Raphael's Hospital.

INDIANA STUDY GUILD

The Indiana Study Guild of the International College of Surgeons met at St. Anthony's Hospital, Terre Haute, on January 11 under the auspices of Dr. J. Rudolph Yung, president, assisted by Dr. John E. Dailey. The clinical part of the meeting began at 9 a.m. It was followed by a luncheon and round-table discussion which ended at 5 p.m.

Four operations, skilfully performed, were the *pièce de résistance* of the highly interesting and instructive clinic. There was a constant stream of questions and answers. The afternoon round-table discussion was informal, informative and enjoyable. There was freedom from restraint in asking or answering questions on the cases seen and on a variety of other subjects of general interest. The genuinely friendly atmosphere was admirably suited to the free exchange of opinion.

Dr. Yung discussed in detail the subject of goiter, stressing the importance of proper diagnosis and the interrelation of symptoms and signs. He called attention to the value of laryngoscopy in detecting malignancy. He elaborated on the hazards and difficulties encountered in removing intrathoracic goiters and on the technical steps which facilitate the operation. He also presented his interesting experiences with presacral resection in the treatment of dysmenorrhea; following this he demonstrated instruments, secured in France, which he uses successfully in banding and plating long bones.

Dr. V. A. Lapenta discussed uterine fibromyomas and technical procedures for their removal. Drs. John W. Emhardt, Myron Curtner, Yung, Simon Reisler and Dailey participated in the discussion.

Dr. Reisler called attention to a relatively rare condition of duodenal stenosis with atrophy following ulceration and duodenitis, which he attributes to destructive circulatory changes induced by chronic disease in the duodenum. He mentioned three such cases upon which he had operated successfully.

It was the unanimous opinion of all present that the Guild meetings offer a most satisfactory method of education.

—Simon Reisler, M.D., M.I.C.S.
Secretary, Indiana Study Guild

NEW ENGLAND STATES GUILD

The first meeting of the New England States Guild, International College of Surgeons, was held in Westfield State Sanitorium, Westfield, Mass., December 13, 1939, under the chairmanship of Dr. Frank H Baehr, of Springfield, Mass., who personally arranged the details and program of this successful meeting. Excellent cooperation was afforded by Dr Roy Morgan, superintendent of the Westfield State Sanatorium, and Dr. Paul V. Jakmauh, Commissioner of Health, State of Massachusetts.

As early as 8 o'clock in the morning the doctors began to arrive to participate in the proceedings. The morning program consisted of a "wet" clinic from 8:30 a m. to 1:30 p m. During this time the members of the hospital staff operated on some very difficult cases, demonstrating each phase of technic and presenting details regarding history, treatment, progress, residence in the hospital, follow-up treatment, social service investigation and observation for a five-year period. All phases of cancer work were gone into very carefully. Cancer of the breast and of the rectum were particularly emphasized and carefully demonstrated. The operations and proceedings were stimulating and were based on the concepts of the College as a teaching organization.

At 1 p.m. an excellent luncheon was served in the dining room of the hospital. During the lunch hour, the New England States Activities Committee met in a small room adjoining the dining room Much time was given to reviewing applications of candidates. The eligibility of the applicants was carefully scrutinized, care being taken not to refuse admission to anyone who was worthy and not to exclude anyone for personal reasons but to choose men of the type whose leadership would earn for the College in New England the highest standing as well as promote the maintenance of a high standard for all applicants. Dr Baehr was elected permanent secretary of the Guild Committee.

The afternoon program began at 2:15 with an address of welcome by Dr. Jakmauh, followed by an outline of the basic principles and objectives of the College. Membership classification, objectives and ideals were explained. The afternoon was then devoted to the study of ten subjects, each one of which was covered by an expert in his special line of work. Fifteen minutes were allotted to each speaker, who illustrated his subject with drawings, lantern slides and radiograms; ten minutes were then given to discussion of the subject presented. Special mention should be made of talks given by Drs. Ernest M. Daland and Eugene W. Beauchamp on carcinoma of the breast; Dr. Baehr, on malignant melanoma; and Dr. J. W. Turner, on metastatic malignancies of the lungs and skeleton.

Through the cooperation of the hospital, a young lady recorded registrations. As each doctor entered the hospital, he was assisted in filling out a card, and thus a record of all in attendance was obtained. During the day requests were made for copies of the Constitution and By-Laws and the JOURNAL.

Before adjournment at 5:45 p.m., a vote of gratitude to Drs. Jakmauh, Morgan and Baehr was recorded.

—George S. Foster, M.D.
Chairman

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COLLEGE PERSONALITIES

Professor Theodore Papayoannou

Vice-President, International College of Surgeons

Dr. Papayoannou, of Cairo, Egypt, whose splendid scientific competence has been recognized in surgical spheres, is a man of remarkable ability. His father, Lucas Papayoannou, was professor of anatomy at the University of Athens, Greece. The younger Papayoannou enjoyed an enviable record of training. He studied under von Angerer and Amann in Munich and under Terrier, Hartmann, Pozzi, Tuffier, Lecène, Gosset and others in Paris. Erstwhile chief of the surgical staff of Saint Sauveur in Athens, chief of Areteion Hospital of the same city and from 1912-1920 chief surgeon of the Hellenic Hospital in Cairo. From 1920-1926 he was director and chief surgeon of Kasr-el-Dobara Hospital of Cairo. He is a founder member of the Egyptian Surgical Society, professor of surgery of the National University of Athens, member of the International Surgical [illegible]

He is a philanthropist and an organizer of unquestionable merit and untiring activity. Many well earned laurels grace his brow. He is founder of a hospital in Cairo bearing his name, where his high conception of medical teaching and of professional ideals has moulded such students as Koumaris, Leonnades, Tombler and others. In his modern institution the true precepts of Aesculapian ideals are imparted to those who come to quench their thirst for knowledge. Not only the scientific work which is pursued here but the bounteous philanthropy dispensed liberally by its founder classes this institution in the first rank of charity organizations which are in operation in the capital of Egypt. A commendable *esprit de corps* is characteristic of its surgeons, physicians, chemists, radiologists and other coworkers. Papayoannou typifies the sympathetic colleague of high surgical ability and erudite judgment, besides being a prolific contributor to contemporary surgical literature in a number of languages. In his tasks as vice-president of the International College of Surgeons, he always is cooperative and gives much of his time and sincere effort to the furtherance of its ideals. Steadfastness of purpose is an outstanding trait of Papayoannou. For this and other weighty reasons it is easy to understand why he is held in such high esteem by his contemporaries and admirers in other walks of life. During the World War, Papayoannou rendered invaluable service by caring for the sick and wounded in the country of Gallipoli.

In March, 1930, he made an outstanding contribution to the surgical treatment of bilateral renal lithiasis; he pointed out the importance of operating in two or three stages instead of in one stage. In 1937 he saw this original work mature to fruition, having reported a rather large series of cases of bilateral calculus with pyonephrosis, in which he was able by his procedure to save the great majority of patients, thus establishing multiple stage interventions as a life saving measure in these cases. Also by his surgical ingenuity he modified the Whitehead operation. In a large series of cases the patients thus operated on were free from stricture formation and other complications remaining.

From his numerous scientific publications in English, French and German we cite only a few, a great many of which are classical. He wrote [illegible] on "Echinococcus of the Optic Nerve"; "Permanent Bilateral Ankylosis of the Temporo-maxillary Articulation", "Surgical Treatment of Pulmonary Tuberculosis", "Malignant Tumors of the Thoracic Wall", "Malarial Splenomegaly", "Surgery of the Spleen", "Treatment of Suppurative Arthritis of the Knee", "Endothelial and Metastatic Tumors of the Ovary", "Radical Treatment of Cancer of the Uterus", "Malignant Tumors of the Ovary", etc., etc., etc. To continue citing would take us far afield. His works on asepsis, infection, sterilization of instruments and of ligature and suture material, on local anesthesia, the treatment of operative wounds of the abdomen, spinal anesthesia, rectal narcosis with avertin place him among the first rank of contemporary surgeons, and fortunate indeed are those who come under his inspiring personality and feel the warmth of the friendship so characteristic of Papayoannou.

Book Reviews

The Art of Anesthesia. By Paluel J. Flagg, M.D. Tenth edition. Price, $4.50. Pp. 713, with 192 illustrations (66 in color). Philadelphia: Lea & Febiger, 1939.

As the title indicates, this volume deals with the art of anesthesia, principally inhalation anesthesia. Nitrous oxide, ethylene and ether are well covered. In the chapter, "Selection of Anesthetic," nitrous oxide and oxygen, or ethylene and oxygen, or nitrous oxide, oxygen and ether, or ether alone are the only anesthetics considered. The importance of resuscitation and prevention of asphyxial death are strongly emphasized as is also the intratracheal technic. The author presents his own technics well and for those who use those technics, the book will be appreciated.

CHAS. J. BETLACH

Atlas of Surgical Operations. By Elliott C. Cutler, M.D., F.A.C.S., Moseley Professor of Surgery, Harvard Medical School, and Surgeon-in-Chief, Peter Bent Brigham Hospital, Boston; and Robert Zollinger, M.D., F.A.C.S., Assistant Professor of Surgery, Harvard Medical School, and Senior Associate in Surgery, Peter Bent Brigham Hospital. Price, $8. Pp. 181, with 84 plates. New York: The Macmillan Company, 1939.

In producing this book, the authors have attempted to call back into general use the large-sized surgical volumes in vogue 50 to 80 years ago, the advantage of the large pages being that the majority of operations can be depicted on a single sheet. The book itself measures 15x10½ inches and the plates, 8½x12½ inches. Despite the ease with which the operative procedures can be followed, the fact remains that the book is somewhat unwieldly and does not fit into the average modern bookcase.

Since fascial planes are the most important part of thyroid surgery, a drawing showing the arrangement of the cervical fascia would be in place here. Plate II, figure I does not meet this purpose. In the chapter on indirect hernia, high ligation of the sac should be stressed, and a more thorough discussion of the repair of the wall should be included.

One misses, under the heading of gastrostomy, the inclusion of the more recent valvular and tubovalvular gastrostomies. Under the surgical treatment of hemorrhoids an illustration depicting the anatomical sites of the three primary piles would be advantageous.

It would perhaps have been well to have devoted more space to the important subject of hand infections. The technical details in this connection could perhaps have been stressed. Figure 15, page 167, could be improved upon.

It is hoped that in the next printing of this work, something on the more recent tendoplastic amputation of the leg will be included. This form seems to be replacing the time honored mid-thigh operation.

The text as a whole is far superior to the illustrations. The latter are diagramatic and, at best, rather poorly executed. Note, for example, those of intestinal anastomoses. Their diminutive size and lack of clarity leave much to be desired. They are difficult to follow, particularly for a beginner. Or note the lack of clarity in some of the steps depicting the Billroth operation.

The authors are acknowledged teachers of s gery. Their endeavors in imparting from the vast store of their personal knowledge could be much enhanced by good illustrations and the inclusion of many standard procedures which the general surgeon should command. For example, the important operations on the male genital apparatus are wholly lacking. The methods described are those used by the authors.

The binding, printing and paper are excellent.

P.

La legatura dell'arteria splenica. By Giulio Bombi: Roma: Luigi Pozzi, 1938. Pp. 182.

THIS book of 182 pages summarizing the subject may be welcomed as something which fills a long felt need.

Following a historical sketch, a detailed account is given of the experimental results of ligating the splenic artery and of anatomic peculiarities shown by changes in the structure of the spleen, lymphatic glands and bone marrow. Morphologic changes in the blood after ligation and changes in metabolism are alluded to. The greater part of the book deals, of course, with the practical application of the method in the treatment of the various diseases of the blood, pernicious anemia, leukemia, Werlhof's disease, hemolytic jaundice, fibrosis of the spleen and Banti's disease. The anatomy present in and the surgical technic for each case are minutely described.

F. M.

The Practice of Urology. By Leon Herman, B.S., M.D., Professor of Urology, University of Pennsylvania, Graduate School of Medicine; Urologist to the Pennsylvania Hospital and to the Bryn Mawr Hospital; Consulting Urologist to the Methodist Episcopal and Burlington County (New Jersey) Hospitals. Price, $10. Pp. 923, with 504 illustrations and plates. Philadelphia: W. B. Saunders Company, 1939.

IN this volume of some 923 pages, closely written, the author has fulfilled a frankly expressed ambition to prepare a practical treatise on diseases of the urogenital system. A careful reading of the work gives conclusive evidence of the successful attainment of the author's mission—the presentation of a careful and well-prepared summary of our present day knowledge of urology and its closely allied genital conditions.

Conservative throughout, yet modern in its highest sense, this book reflects the vast clinical experience and technical skill of the author. It is intended primarily for the general practitioner and surgeon, but it might equally well serve as a [illegible] because of the simple and straightforward manner in which the subjects are discussed. Principal emphasis has been placed on modern methods in diagnosis and treatment, many of which are readily applied to office practice. This is especially true in the consideration of the important subject of gonorrhea, to which much space is devoted. The latest advances in treatment are fully considered, and it is noteworthy that the author has not discarded well-tried therapy of the past for the magical Sulfanilamide.

There are unusually excellent sections on general diagnosis with the aid of the cystoscope, the urethroscope and urography, which constitute the opening chapters. What is particularly refreshing and valuable about this work is the frank discussion of controversial problems in terms of the author's personal experience, when such discussion seems necessary for clarification from the practical angle. Throughout the work the reader is told what the author does and what he uses preferably in this or that condition. One can almost imagine himself working alongside of the author and absorbing his clinical teachings. This makes the volume exceptionally valuable to the student or the general practitioner.

The experienced urologist may take occasional issue with the author on details of therapy or methods of diagnosis, but the general tone throughout is sound and in line with the best urologic thought of the day.

This splendid volume may be considered a living monument to the surgical acumen and clinical experience of the author and can be highly commended as a most worthy contribution to American urologic literature. It was a pleasure to read this work and it is a still greater pleasure to recommend it.

A. L. W.

Technik der Knochenbruchbehandlung. By Böhler. Pp. 1,532, with 1530 illustrations. Sixth edition. Vienna: Wilhelm Maudrich, 1938.

THE sixth edition of Bohler's well-known work, which has been translated into English, Spanish, Russian, Polish, French and Italian, is an unrevised reprint of the fifth edition which appeared in 1937. The size of the volume (pp 1,532) has doubled since 1933, and there are 1,530 illustrations

Let us say at once that this is not a treatise on the treatment of fractures, for we are given a detailed description of complaints which have nothing to do with fractures. Take, for example, the chapter on injuries of the soft parts of the fingers and of the tendon sheaths, the chapter on injuries of the crucial ligament and injuries of the meniscus at the knee joint, or the discussion of pain in the knee in the obese woman or the remarks on flat foot, hollow foot and club foot.

It is doubtful whether the work has been improved by this expansion of its contents. The doubt increases when we consider that in the introduction Bohler repeatedly asserts that the book was written "for those who wish to learn something about fractures and not for those who know all about them." Elsewhere we read that the book was meant for the practitioner. But this book can be useful only for the experienced surgeon who may here learn how Bohler treats fractures and will then allow his experience to guide him as to when to follow Bohler and when to adopt other methods In our opinion, therefore, Bohler is wrong about the type of reader for whom the book is meant.

Bohler describes his methods of treatment, some of which we know to be excellent, but we also know that other methods exist, which are simpler, safer and quicker. But even his own methods—according to Bohler himself—are inconstant to a degree seldom met with in a text-book In the introduction to the third edition (1932) Bohler writes, "Some methods which I have previously [meaning in the 1930 edition] recommended are now to be reckoned as mistakes." In the introduction to the fourth edition (April, 1933), he writes, "Later observations on fractures of the os calcis have shown that the *methods recommended in the third edition—the* use of the reduction according to Phelps-Gocht and tenotomy of the tendo Achillis—have not stood the test, so that the treament of fractures of the heel has been revised . . . "

The same is to be seen in the fifth edition, which appeared in 1937.

There is no doubt whatever that such instability of outlook in a text-book can only lead to confusion and that calmness and moderation as well as the assurance of the accuracy of the subject treated—at least within such a short period of time—are the fundamental and unalterable basis of every text-book. Bohler never deals with new findings in surgery Instead, he treats of the systematic organization and handling of familiar methods which have already gained currency.

But we must note with gratitude the inclusion in the new, enlarged edition of several historical references to interesting and important methods, the lack of which had detracted from the value of the previous editions. An account, for example, is at last given of the history, beginning with Smith-Petersen, of the use of the nail in fractures of the neck of the femur. There is also a reference to the history of the treatment of fractures of the spine, from which we may gather that Bohler, in his numerous publications on the subject, as well as in his many recent pronouncements at congresses, meetings, through films and in print, in no way differs from Davis.

But there is still a great deal of historical value lacking in this voluminous text-book. A number of details should have received mention, especially where the *subject* of *anesthesia* was dealt with or the unpadded plaster of Paris bandage. The fact remains that where Böhler, in his systematic and instructive way, presents

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us with his immense experience in the localization of fractures, his book is of great teaching value. But where he digresses into the field of medicine or physiology, one must wonder at as well as disagree with much that he says.

Let me mention a few points. When Böhler speaks of the extra-articular use of the nail in fractures of the neck of the femur, he refers to the "15 seconds breathing test" in considering whether operation is indicated, and says, "Holding the breath with the nose and mouth closed is an extremely simple and reliable method of testing simultaneously the soundness of lungs, heart and circulation. Only when the breath can be held at least 15 seconds should operation be undertaken. When this is not the case, the heart must receive attention. We have had cases where the patients could hold their breath for no more than five seconds, but acquired the ability to hold it for 15 seconds in the course of 3 to 6 weeks. Where this is not attained, operation should be avoided." Comment would be superfluous.

Here is another point. Bohler regards myositis ossificans traumatica as resulting solely from trauma in after treatment caused entirely by vigorous massage and energetic passive movements.

Perhaps the author will note these points for future editions

A particularly unpleasant feature in the book is the detailed, sarcastic, sometimes aggressive description of other surgeons' failures. The educational value of such reports would not suffer were they presented with more detachment and less malice. Their tone is out of place in a text-book.

Every chapter dealing with individual fractures ends with a summary of "mistakes" in treatment Many may prove to be right, many of these "mistakes" may perhaps be accepted by the author himself in succeeding editions, and many others call for discussion.

The fact that Bohler throughout the book declares war on the use of chemical, endocrine and serologic methods, that since 1938 he has given no tetanus prophylaxis in his injuries, that he uses every occasion to wage war—a passionate and destructive war—against every kind of medical technic, serology, the treatment of metabalism etc., without making the slightest attempt to define the scientific basis for his attitude, does not make this a particularly suitable text-book for the practitioner. But all in all Bohler's book is interesting and instructive. It is stimulating to the surgical specialist, and useful, too, if he understands how to select, when at the bedside, from what he has learned from Bohler.

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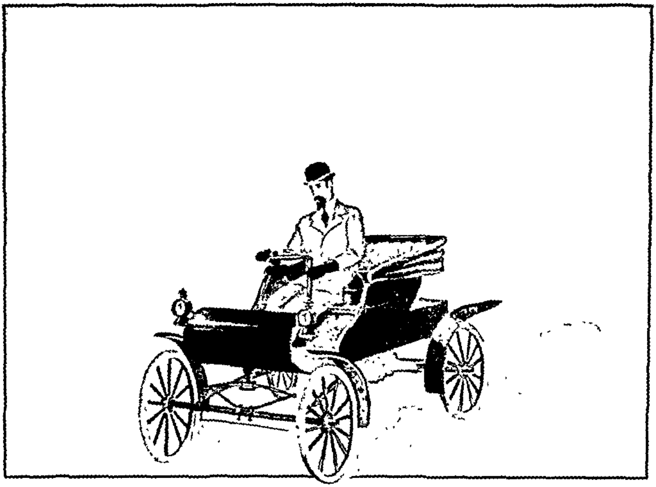

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The Journal of the *International College of Surgeons*

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CONTENTS *for* OCTOBER, 1940

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Fred H. Albee, M.D., Sc.D., LL.D., F.A.C.S., F.I.C.S.

ORIGINAL ARTICLES

The Surgical Treatment of Giant-cell Tumors of Bone. *Alberto Inclan, M.D., Havana, Cuba* 389

The Ambulatory Treatment of Recent Fractures of the Intracapsular Neck of the Femur Following Threaded Wire Fixation. *Edward L. Compere, M.D., Chicago, Illinois* 401

The Treatment of Old Ununited Infected Fractures. *Carl E. Badgley, M.D., and Herbert W. Harris, M.D., Ann Arbor, Michigan* 413

Correlation in the Use of Mineralized Foods and Vitamins in Treatment. *Fred H. Albee, M.D., New York, New York, and Venice, Florida* 425

Patellar Advancement Operation: A Revised Technic. *Fremont A. Chandler, M.D., Chicago, Illinois* 433

Skin Graft for Spina Bifida with Meningocele or Myelomeningocele. *Oswaldo Pinheiro Campos, M. D., Rio de Janeiro, Brazil.* 438

Subcutaneous Lengthening of the Achilles Tendon: Preliminary Report. *Juan Farill, M. D., Mexico City, Mexico*............ 442

Congenital Dislocation of the Hip: A System of Treatment. *Arthur Krida, M.D., New York, New York*................ 445

Bone Formation in Abdominal Scars. *H. D. Junkin, M.D., Paris, Illinois*.. 447

The Medico-Legal Aspect of Injuries to the Head. *Henry A. Beaudoux, M. D., San Jose, California*........................ 449

Sarcoma of Muscle. *Ronald L. Benison, M.B., London, England*.. 460

A New Traction Device for the Immediate Treatment of Fractures. *O. De Muth, M. D., Vancouver, B. C.*................. 466

EDITORIALS

Evolution of Orthopedic Surgery. *F. H. Albee, M.D., New York, New York, and Venice, Florida*......................... 468

The Treatment of Infected Wounds. *H. Winnett Orr, M.D., Lincoln, Nebraska*... 470

The International College of Surgeons' Credentials Booklet....... 471

The President's Page—United States Chapter.................. 473

Obituary Notice.. 476

News Items... 477

Book Reviews... 479

Index to Advertisers.. 484

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The Journal of the
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The Surgical Treatment of Giant-Cell Tumors of Bone

ALBERTO INCLAN, M.D.
HAVANA, CUBA

IT is not our intention to present a complete study concerning giant-cell tumors of bones, their etiology and pathogenesis, or their clinical appearance. We believe that true giant-cell tumors of bones are benign in character. They do not produce metastasis, but if they are not treated properly and precociously they may develop in such a manner that the cortical part of the bone shell will be completely destroyed. The tumor will show such a destructive picture of the epiphyseal end of the affected bone that local malignancy must be admitted. The surgeon is confronted with the problem of a growing osteolytic tumor, expanding toward a joint, and sometimes destroying the articular surface, as well as the cortex of the epiphyseal wall. When the tumor is localized at the lower femoral epiphysis, in the upper end of the tibia, or in any other of the weight-supporting joints, the functional disturbance of the affected limb is of much importance in determining the late prognosis of these cases. Imminent pathologic fracture also must be considered.

Opinions expressed in the literature concerning the prognosis and treatment of this type of tumor are frequently conflicting, but many of them emanate from such reli-

TREATMENT

Undoubtedly, the selection of treatment in dealing with a giant-cell tumor is quite a difficult problem. As Coley and Higinbotham have stated recently, "Opinion is so widely divergent" that "until a more satisfactory answer has been found the profession should retain an open mind on the *subject.*"

The treatment generally recommended is:

Conservative:
  1. Radiotherapy.
  2. Radium.

Surgical:
  1. Curettage.
  2. Curettage and packing with muscle, fat grafts, or even with some inorganic substance, such as Beck's paste or Mosetig-Moorhof's bone wax.
  3. Curettage and bone chips or loose bone grafts filling the cavity.
  4. Excision and bone grafts.
  5. Resection.
  6. Amputation.

RADIOTHERAPY.—Custis Lee Hall has published cases of giant-cell tumors which have been treated with radiation of the parathyroid glands. Our experience with this type of treatment has been limited, which may be due to the fact that in our cases radiotherapy has been unsuccessful, and, in two instances, local malignancy has become intensified as the result of using X-ray therapy. Nevertheless, at the Havana Cancer Institute, radiotherapy is recommended for all cases except those of the recurrent type, in which radiotherapy has been ineffective. It is their opinion, however, that radiation in the same dosage, such as that used in treating malignant bone tumors, should be employed for the recurrent type of giant-cell tumors.[1]

On the other hand, Coley recommends the use of smaller doses of X-ray, with the *cycles repeated less often, or at longer intervals,* in order to obtain better results. In his series of cases, surgery alone yielded the largest proportion of excellent results, whereas, surgery combined with radiation gave the poorest results.

In the following case, radiotherapy aggravated the clinical symptoms and marked radiographic local malignancy resulted.

CASE 1—E. I A., a white Cuban woman, aged 24, seven months' pregnant, whose past history was without significance until November, 1938, when she noticed a small mass in her left wrist without the occurrence of trauma. The tumor gradually increased in size, later causing slight pain, limitation of motion, and loss of muscular strength. The first roentgenograms and arteriography were positive of a giant-cell tumor of the lower end of the radius (Figs. 1 and 2). Deep X-ray therapy was given up to a total of 1400 r. Two months later, when this patient was brought to our service, the tumor had increased and the hand was displaced toward the ulnar side. Slight pain, local heat, and marked limitation of the wrist motion were present. The next roentgenogram showed marked increase in the size of the tumor, with destruction of the epiphyseal external cortex, as well as the articular cartilage (Fig. 3).

Operation—Block resection and bone graft to supplant the bony defect, with implantation of the lower end of the graft into the carpal scaphoid, was done on May 3, 1939 At that time the tumor was larger than the one shown in the roentgenogram (Fig. 3), which was made in February, 1939. Primary healing and good union were obtained (Fig. 4).

Seven months later, as the result of strenuous movement of the arm, the patient experienced acute pain and deformity of the wrist Fracture of the graft had occurred

Pathologic Report.—Giant-cell tumor. The specimen revealed great vascularization and hyperchromatism of the stroma cells, suspicious of histologic malignancy.

Results.—One year after the operation the patient had no pain. Good healing of the fracture had been accomplished, but limitation of motion at the wrist and thumb was present (Fig. 5). No recurrence or metastasis was indicated.

It is our opinion that radiotherapy alone should be used only when surgical treatment is not possible, as, for example, in giant-cell tumors of the vertebral bodies, deep cranial bones, etc.

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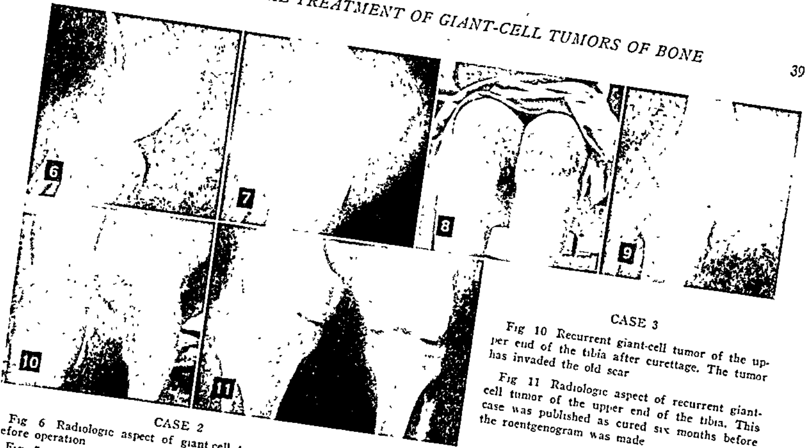
[1] We are indebted to Dr Luis Fariñas, Radiologist of the Havana Cancer Institute, for this information



CASE 2

Fig 6 Radiologic aspect of giant cell tumor of the patella before operation

Fig. 7 After curettage and radiotherapy Recurrence

Fig 8 Appearance of the tumor after recurrence when the patient was admitted to the hospital.

Fig 9 Radiologic aspect of the tumor Complete disappearance of the bone trabeculæ, and marked enlargement of the tumor

CASE 3

Fig 10 Recurrent giant-cell tumor of the upper end of the tibia after curettage. The tumor has invaded the old scar

Fig 11 Radiologic aspect of recurrent giant-cell tumor of the upper end of the tibia. This case was published as cured six months before the roentgenogram was made

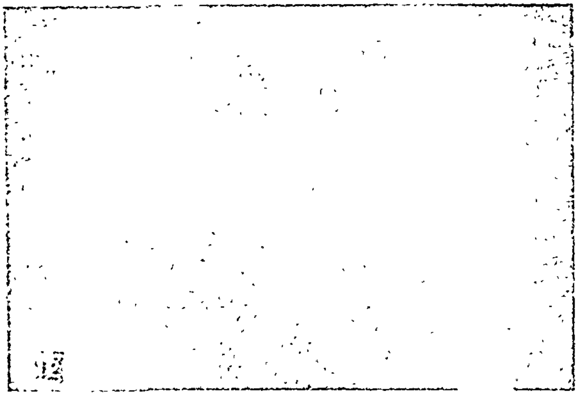
ignancy observed in recurrences after treatment of the tumor by curettage.

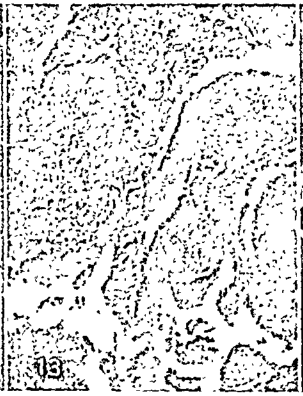
CASE 2—A. B P, a white Cuban woman, aged 49, had never been ill prior to the present illness. In November, 1937, the patient stumbled but did not fall This accident was followed by pain and edema in the left knee These symptoms persisted for a long time Walking was difficult Rest diminished the pain, but did not afford complete relief. She received treatment for rheumatism by the use of salicylates, without any improvement In April, 1938, a giant-cell tumor of the patella was diagnosed at another hospital and curettage, with gauze packing for twenty-four hours, was done Two months later healing was obtained The aspect of the lesion before the operation is shown in Figure 6. In July and November, 1938, and in July, 1939, radiotherapy was given. The tumor during this course of treatment is shown in Figure 7, taken in February, 1939 Five months after the last treatment, which was given in December, 1939, the patient experienced much discomfort and was unable to walk Great limitation of the joint's motion was observed The tumor had greatly increased in size and there was involvement of the surrounding soft tissues The aspect of the tumor and the changes observed following radiotherapy, with complete disappearance of the patella, are demonstrated clearly in Figures 8 and 9 The patient is in the hospital at present under postoperative observation A total resection of the tumor has been done with plastic repair of the patellar defect, using a pedicle graft of fascia lata.

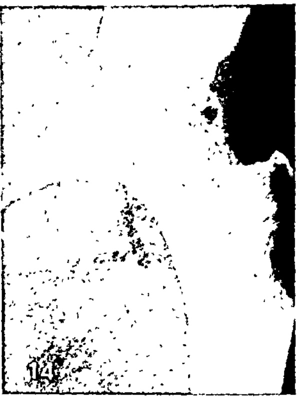
CASE 3.—H. R. A, a white Cuban woman, aged 25, had always been healthy until six years ago, when she had an ovariectomy and cervical amputation. Her present illness began five years ago. At that time, no trauma was present, but she experienced slight pain and discomfort of the left knee, and, as a result, received treatment for a rheumatic condition. Two years later she suffered greater pain. A tumor at the upper end of the tibia was observed, causing limping and great local tenderness The patient was operated upon in September, 1937, by means of curettage and iodoform gauze packing in another hospital, and healing was obtained after three months Later, this case was published by the surgeon who considered the results permanent. Nevertheless, in March, 1938, the patient suffered pain, limping, and the tumor reappeared. Radiotherapy was employed without success By March, 1940, the patient experienced great difficulty in walking, and a tumor, which seemed to have invaded the old scar, was very marked at the upper end of the tibia Local heat and superficial venous circulation were noted Evident signs of localized malignancy were present. The aspect of the recurrent tumor and the advanced osteolytic destruction of the upper end of the tibia are shown in Figures 10 and 11 At the present time the patient is on our service awaiting new surgical treatment

In cases of this type, where local malignancy is so marked, resection with immediate transplantation of a large massive graft, or amputation, seems to be the only method of choice.

CURETTAGE AND PACKING WITH MUSCLE, FAT GRAFTS, OR INORGANIC SUBSTANCES.—We have employed only to our satisfaction the packing of bone cavities with muscle or







CASE 4

Fig. 12. Benign giant-cell tumor of the trochanter.
Fig. 13. Microphotograph showing benignity of the stroma cells.
Fig. 14 Complete cure after curettage and packing with bone chips.

fat following chronic osteomyelitis. In one case of giant-cell tumor, however, which we treated by curetting and then packing the cavity with granulation tissue, we cannot claim success. In this instance, the tissue was transplanted from another patient after resection of an old scar resulting from an extensive, although uninfected, burn of the axilla. We have not employed muscle or fat grafts, inorganic paste (Beck) or bone wax (Mosetig-Moorhof) in any of our cases of giant-cell tumors. Some surgeons report success after using these methods.

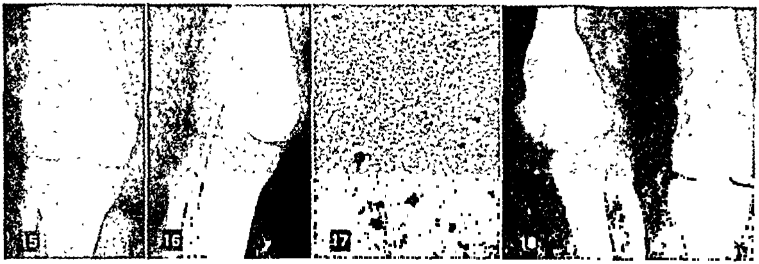
CURETTAGE AND BONE CHIPS OR LOOSE BONE GRAFTS FILLING THE CAVITY.—This surgical procedure is employed more often in the treatment of bone cysts than in giant-cell tumors, and even though we have thought it wise to discard its use altogether, there are many surgeons who believe this method to be the best choice of treatment for giant-cell tumors. It is our opinion, however, that this method can be used successfully in those cases in which there is evidence of local malignancy and the stroma cells show tendency toward fibrosis. The following case is an interesting example of this type of tumor; nevertheless, we must call attention to the fact that the pathologic and clinical aspects of this giant-cell tumor are quite different from other cases reported herein.

CASE 4.—M. L. L., a white Cuban boy, aged 14 years, whose previous history is irrelevant, had complained of increasing discomfort in the left knee and limping since July, 1938, without any history of trauma. Finally, the pain localized in the left hip. At that time he was seen in our out-patient department and his condition was diagnosed as possible tuberculous osteitis of the trochanter. During the following three months the patient was kept in a plaster cast and a general course of treatment was carried out. No improvement was obtained. Another roentgenogram revealed a localized osteolytic condition of the left trochanter, with thinning of the cortex and expansion of the trochanter (Fig. 12). Curetting of the trochanter was performed in May, 1939. A mass of sponge-like tissue was removed for microscopic examination. Bone fragments from the tibia were used to fill in the cavity, and a plaster spica was applied. Immobilization was maintained during five months.

Pathologic Report.—The section showed a few typical myeloplaxes or giant cells, with stroma formed by histiocytes and lymphocytes and gross fibrous and collagenous bands in some parts of the specimen. The evolution of these giant-cell tumors is toward spontaneous sclerosis (Fig. 13).

Results.—Complete healing in May, 1940, with negative symptomatology. Roentgenogram revealed re-establishment of normal bone trabeculæ (Fig. 14).

EXCISION AND BONE GRAFTS.—The majority of surgeons will try to save the function of the joint whenever the giant-cell tumor



CASE 5

Fig. 15 Typical giant cell tumor of the lower end of the femur at the external condyle.

Fig 16. Arteriography showing no signs of malignancy.

Fig 17. Histologic aspect of the tumor.

Fig 18. Result of excision and massive bone graft Joint mobility saved, but the bone structure is far from normal.

is localized in the vicinity of a weight-supporting joint. To carry out this purpose, a partial resection or excision, with curettage of the entire tumor, is done in order to leave a shell bone in which to place solid grafts from the diaphyseal end of the bone to the epiphyseal shell. This surgical procedure is generally employed in conditions involving the upper end of the tibia and the lower end of the femur.

Our experience with excision and bone grafts in giant-cell tumors which have shown local malignancy is not convincing, as we have been unable to obtain a complete repair of the bone tissue, such as is shown in Case 4. Furthermore, we have had recurrences, some of which have had rapid growth, as illustrated in Case 7; others showed only a partial reconstruction of the bone which lacked the normal aspects of bone tissue.

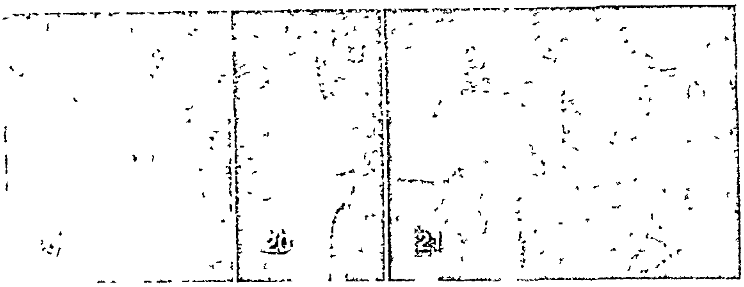
The following case is an example of treatment by excision and bone grafts:

CASE 5 — J. H D., a colored Cuban woman, aged 30, whose past history had been irrelevant until June, 1937, *following a fall on her right knee, after which she* complained of swelling, pain, and limping. Eight months later the patient fell again on the same knee, causing increased swelling, fever, and marked functional disturbance of the joint. The condition was treated by different drugs. Three months later, as the patient noticed no improvement, she came to the hospital, and an examination of the right knee revealed lateral enlargement of the external aspect, well localized on the external condyle, local heat, pain, limitation of flexion and extension and lateral instability *of the knee, as well as marked* muscular atrophy of the thigh. Roentgenogram (Fig. 15) showed a typical giant-cell tumor of the lower end of the femur at the external condyle. Arteriography showed no signs of malignancy (Fig 16).

Operation—The following procedure was carried out on September 28, 1938 Excision of the tumor; partial resection of the capsule and thin cortex of the lateral anterior aspect of the external condyle; curettage of a very large cavity with cleaning of the whole soft tumor, leaving the endosteal aspect of the external condyle undisturbed; transplantation of a large massive graft from the tibia, placing it between the diaphysis and the articular end of the epiphysis, thus maintaining the thin shell of the condyle in proper position; placement also of extra grafts as a scaffold to prevent collapse of the weak, empty shell. The patient's knee was placed in a plaster cast for three months. Primary healing was obtained. Radiographic checking indicated a slight recurrence of the tumor and radiotherapy was administered.

Pathologic Report.—The section showed a giant-cell tumor with very numerous giant cells Hyperchromatism and karyokinesis of the stroma cells were present, indicating the absence of an entirely benign prognosis (Fig 17)

Results.—Twenty months have elapsed since this operation, and the patient experiences no pain on weight-bearing, walks without a cane and has only a slight limp. Complete extension of the knee has been obtained, although flexion is limited to a 45° angle. Roentgenograms reveal great improvement, but the



CASE 6

Fig 19. Giant-cell tumor of the left patella.

Fig. 20 X-ray appearance of giant-cell tumor of the patella.

Fig. 21. Postoperative result after complete resection and plastic repair with a pediculated graft of fascia lata.

aspect of the bone trabeculæ is abnormal and the grafts are still noticeable and well limited The cortex is uniform (Fig. 18).

RESECTION.—Because of the successful use of this surgical procedure for many years, we are inclined to believe that its true merits as a method of treatment have not been recognized by the profession in general. Our experience with block resection and bone transplants in progressive localized osteitis fibrosa has been published in a previous article; nevertheless, we should like to say here that we have followed our cases treated in this manner for many years, and we have had no recurrences. We also have had cases of giant-cell tumors in which resection has been used which resulted in permanent cures.

We are inclined to believe that in cases with marked local malignancy, or in recurrent cases after curettage, as those illustrated in Cases 2 and 3, block resection must be done to obtain permanent cure. The bone defect can be filled with an autogenous bone graft, or, as in the cases presented by Huet and others, using similar epiphyses obtained from recently amputated limbs.

The following cases are presented to illustrate the successful results obtained in giant-cell tumors treated by complete resection:

CASE 6—M I Q., a white woman, aged 35, whose past history had been irrelevant until May, 1927, when she fell on her left knee, suffering pain, edema, and functional limitation. The pain was not relieved and a tumor appeared at the anterior aspect of the knee cap. Examination revealed a painful enlarged patella, forming a tumor about the size of a small orange, reddish in color, and with local heat. There was no pulsation or fluctuation, but the voluntary extension was limited to 160°, and flexion was painful and limited (Fig. 19). Roentgenograms revealed enlargement of the patella, very thin cortex, and typical irregular cell formation, suggestive of giant-cell tumor (Fig. 20).

Operation.—On May 25, 1929, resection of the tumor was done with plastic repair of the defect by the use of a pediculated flap of fascia lata.

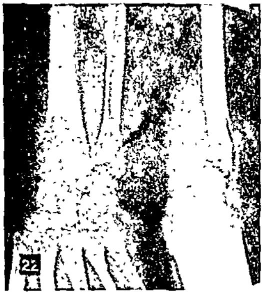
Pathologic Report.—The section is that of a benign giant-cell tumor.

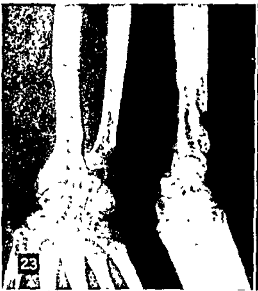
Results.—Complete cure and functional restoration. This patient has been followed for a period of ten years (Fig. 21).

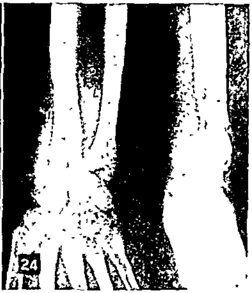
CASE 7.—M. L. G., a white Cuban woman, aged 24, whose past history had been unimportant until February, 1939, when she complained of pain at the lower end of the left forearm. She had no previous history of trauma. Examination revealed edema; a growing mass at the lower aspect of the left radius which was very prominent in the dorsal and frontal plane just above the wrist; local heat; superficial venous circulation; limitation of wrist motion; and limited pronation and supination. Roentgenograms showed a giant-cell tumor at the lower end of the radius, with complete disappearance of the anterior cortex and anterior articular surface of the radius (Fig. 22).

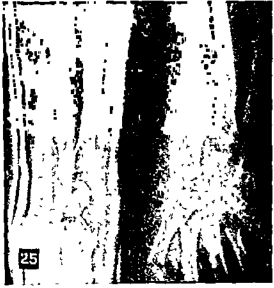
Operation.—In an effort to save the function of the joint, a partial resection was done on May 29, 1939, leaving the articular cartilage. In order to fill this defect, bone grafts taken from the tibia and shaped to reproduce the lower radial end were used. The results are shown in the roentgenogram of October 20, 1939 (Fig. 23). In January, 1940, eight months after the operation, the patient returned to the hospital with a recurrent tumor at the anterior aspect of the lower radial epiphysis (Fig. 24). No improvement was obtained from the use of radiotherapy. She was admitted to the hospital, and on April 3, 1940, a complete massive resection of the lower end of the radius with bone graft was performed. Primary healing has been obtained, but the patient is still under observation (Fig. 25).

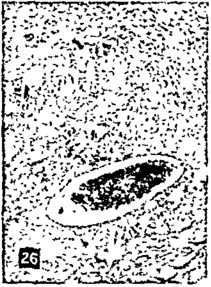
Pathologic Report.—The section consists of numerous giant cells with abundant nuclei placed underneath a fibromuscular capsule presenting a degenerative lesion of muscular fibers. Multiple myeloplaxes seem to be contained within a lymphatic vessel. There is hyperchromatism with mitoses of the stroma cells.











CASE 7

Fig 22. Giant-cell tumor of lower end of radius.

Fig. 23. Result obtained after excision and bone graft. Joint motion preserved.

Fig. 24. Recurrence. Antero-external tumor with evident local malignancy.

Fig. 25. Block resection of lower end of radius and bone graft.

Fig. 26 Histologic aspect after recurrence.

The giant cells are advancing toward the soft tissues with histologic malignancy of the stroma cells (Fig. 26).

CASE 8—J. S. D, a white Cuban man, aged 33, whose previous history had been unimportant until February, 1939, when, without any knowledge of previous trauma, he noticed pain at the left wrist accompanied by lack of strength and inability to continue his work as a truck driver. Examination a month later revealed a small mass at the lower end of the left radius, slightly painful under pressure, with marked restriction of wrist motion. Roentgenograms showed a giant-cell tumor of the lower end of the radius, with the disappearance of the anterior aspect of the radial cortex (Fig. 27).

Operation.—On July 5, 1939, a block resection was done on the lower end of the radius and a thick graft, transplanted from the tibia, was inserted into the carpal scaphoid. Splints were kept on for twelve weeks, and primary healing was obtained (Fig. 28).

Results—In November, 1939, the patient was able to return to work, with sufficient wrist motion to continue his employment without discomfort or difficulty (Fig 29).

Pathologic Report.—The section is a typical giant-cell tumor, with a few mitotic cells in the stroma and a limited amount of hyperchromatism.

It is our opinion that giant-cell tumors should be treated by massive extra-periosteal resection, followed by a thick autogenous bone graft to fill in the bone defect whenever they show clinical and radiographic local malignancy, with a positive histologic report of malignant changes in the stroma cells. There should be no question regarding this method of treatment in my opinion if the tumor is localized in the epiphyseal end of the bones not forming a joint, such as the upper end of the fibula, the lower end of the ulna, the metatarsal bones, or the ribs. Nevertheless, even in tumors localized at the joint end of bones, or in the recurrent types after curettage or excision, if the malignant signs are present resection must be considered in time to avoid amputation, which is, after all, the only choice left to the surgeon for the treatment of tumors that

RESUMEN

Tratamiento quirurgico de tumores del hueso de celula grande

Se describe una serie de casos para ilustrar y discutir métodos quirurgicos distintos para tratamiento de tumores del hueso de célula grande. Dos de los casos son tumores dela rótula, una localización muy rara de esta lesión.

Tales tumores — los de célula grande — mostrando aspecto clínico, radiográfico, o aspecto benigno patologicamente, merecen tratamiento por "curettage." curettage más injerto del hueso, o excisión y injerto, es decir, con tal de que puedan obtenerse una limpia completa del tumor y una curación primaria.

Tratamiento por resección maciza debe hacerse en casos de repitición con malignidad local, y en el tipo "agresivo" de indicaciones clínicas y radiográficas de malignidad y informes patológicos de cambio maligno en las células de estroma. El defecto del hueso debe llenarse para que se conserven la forma y el largo y para garantizar el poder de llevar peso aunque se limite mucho o se pierde por completo la articulación de la juntura.

No debe hacerse nunca una amputación excepto en esos casos que vienen por primera vez al cirujano en estado demasiado adelantado, o infectados despues de un "curettage" previo sin éxito, o en casos que indican una malignidad positiva.

RIASSUNTO

Il trattamento chirurgico dei tumori a cellule giganti dell'osso

E riportata una serie di casi per illustrare e discutere differenti procedimenti chirurgici per il trattamento dei tumori a cellule giganti delle ossa. Due di questi casi sono tumori a cellule giganti della rotula, una localizzazione assai rara di questa lesione.

Tumori a cellule giganti che presentino aspetto clinico, radiologico e patologico benigno richiederanno trattamento con raschiamento, raschiamento più innesto osseo o svuotamento e innesto osseo; ciò avviene se si fa una completa asportazione del tumore e una cicatrizzazione per prima.

Trattamento con resezione a blocchi o massiva dovrebbe farsi nei casi ricorrenti con malignità locale, e nel tipo "aggressivo" con indicazioni cliniche e radiologiche di malignità e con reperti patologici di metamorfosi maligne nelle cellule dello stroma. Il difetto d'osso deve essere riempito per conservare la forma e la lunghezza e per garantire il sostegno del peso anche a spese di una grande limitazione o addirittura intera perdita della motilità articolare.

Amputazione non dovrebbe mai farsi, eccetto nei casi che vengono al chirugo per la prima volta troppo avanzati o infetti dopo un precedente raschiamento senza successo o in casi con segni positivi di malignità.

The Ambulatory Treatment of Recent Fractures of the Intracapsular Neck of the Femur Following Threaded Wire Fixation*

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AMBULATORY treatment of fractures of the neck of the femur was advocated and successfully employed by Bradford in 1919. This courageous pioneer on the frontier of American orthopedic surgery justified such a radical departure from the orthodox Whitman method as follows: "As the patient was sixty-four years of age and older in her condition even than her years, the usual unfavorable results of this fracture from long confinement in bed and joint stiffness following long fixation threatened a serious affliction of permanent if not total disability to a dependent, working woman without home or resources." " . . . plaster bandage, which causes atrophy of the fat, muscle, and, as has been shown by skiagram, also of bone tissue, and therefore is not favorable to bone healing."

Although I but recently read the interesting treatise in which Bradford reported the successful management of three fractures of the hip by means of an abduction-traction-ambulatory splint, I have long been convinced of the importance of sparing the adult, and in particular the elderly patient, the devastating result of long immobilization in a plaster cast. With his plea for early ambulation following fracture of the hip, I am in complete agreement.

The value of early activity after fractures of various kinds has become increasingly recognized during the past few years. The possibility of ambulatory treatment of fractures of the neck of the femur were, for the most part, considered impractical because of the difficulty in maintaining immobilization of a fracture in which the proximal fragment was not under direct control and the standard method of treatment consisted of a large, awkward and heavy body and leg cast. Apfelbach and Aries, in 1936, and Kleinberg, in 1937, each reported a series of cases in which patients were encouraged to walk with crutches within a short period after reduction and plaster cast immobilization of the fracture. Because of the advanced age of the average patient who sustains an intracapsular fracture of the neck of the femur, this method of treatment was regarded by most surgeons as a rather heroic measure. The advantages, however, in instances where it proved to be possible to persuade these patients to walk, were well established by the authors.

During the period from February, 1929, to October, 1936, 16 recent fractures of the intracapsular portion of the neck of the femur were treated by several different surgeons in the University of Chicago Clinics. The results obtained were, indeed, discouraging. Nine of the 16 patients were treated by the Whitman abduction cast; two by open reduction and insertion of tibial bone grafts followed by plaster cast immobilization; two by means of a Smith-Petersen nail and plaster cast; one by means of the Roger

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Anderson well-leg traction splint, and two were simply permitted to lie in bed with sand bags.

Of the 16 patients so treated, the following were the results

RESULTS OF TREATMENT OF 16 RECENT FRACTURES OF THE INTRACAPSULAR PORTION OF THE NECK OF THE FEMUR

RESULT	CASES	AGE
Non-union	5	29-63
Death from bronchopneumonia	3	75-79-80
Union with subsequent necrosis and collapse of femoral head..........	2	15-56
Not followed long enough to know the results (returned to family physician)................	3	
Obtained union with satisfactory end-result (incidence of known good results of only 18.7) . .	3	3½-62-96

Since October, 1936, I have personally treated 10 patients with recent intracapsular fractures of the neck of the femur by early reduction and internal fixation with threaded steel wire. The ages of these patients varied between 32 and 77 years. Five patients were treated at the Albert Merritt Billings Hospital of the University of Chicago, and five in other Chicago hospitals.

The fracture in one case was treated by open reduction because of other injuries including fractures of the shaft of both femurs, which made it impossible to perform a closed reduction of the hip. This patient was the only one of the 10 treated by this method who could not become ambulatory within a few days after the wire fixation. One of the 10 patients was pinned with one threaded wire, and because it was found that no additional wires of this type were available, four Kirschner wires were used also. The smooth Kirschner wires all worked out and had to be removed. It was necessary then to apply a knee-length spica plaster cast, but the patient continued to be ambulatory. For eight patients, no cast, splint or other external method of fixation was necessary.

The hip of the oldest patient treated by this method (L. C., aged 77 years), was pinned June 21, 1938. She was last seen in March, 1939, at which time she was walking very well with the aid of a cane, but the roentgenogram did not show solid bony union, although the alignment of the fracture fragments had been maintained.

To the present time in this very small series of cases, there have been no nonunions and no aseptic necroses of the heads of the femurs. Seven patients have obtained complete bony union in satisfactory position with functionally excellent end-results. One patient has a good functional result, but has not been persuaded to come in for an end-stage roentgenogram. Two patients were treated within the past six months, but the question of union cannot be determined at this time.

Fractures of the neck of the femur were reduced either by the Leadbetter method or, as was true in most of the cases, by moderate traction, abduction of about 30 degrees and internal rotation. The earlier cases were reduced and pinned under fluoroscopic control. It was found, however, to be more satisfactory if the wires were inserted following the technic described by Austin Moore, using anatomic landmarks and checking position of the wires by means of roentgenograms.

For the purpose of fixation, we have selected a threaded stainless steel wire of a composition of 18 per cent chromium and 8 per cent nickel, gauge 0.080, with 56 threads to the inch, ten inches in length. Experimental tests proved that this wire obtained a holding power in the bone which required approximately 100 pounds pull in order to withdraw it. Three such wires accurately placed required an average pressure force of 543 pounds to displace the femoral heads of each of twelve hips obtained at necropsy, fractured, and immediately immobilized in reduced position.

TECHNIC OF INSERTION OF THREADED WIRES

Immediately after reduction, in which the heel-in-palm test indicates engagement of the fragments at the fracture line, a roentgenogram is made in the anterior-posterior and in the lateral planes. An attempt is made to produce a valgus position by increasing the traction or the abduction.

The tip of the trochanter is identified and an Allis forceps is attached to the skin at this point. A second Allis forceps is attached to the skin at a point which is exactly over Poupart's ligament, halfway between the anterior-superior spine of the ilium and the site of attachment of this ligament to the pubic bone. The length of wire to be inserted is carefully determined. Depending upon the amount of soft tissues present, the threaded steel wires are inserted through the skin laterally 2 to 2½ inches below the tip of the greater trochanter. The point of the wire should strike the femur approximately 1½ inches distal to the trochanteric tip.

If the hip is accurately reduced and held in a position of approximately 30 degrees abduction and 30 degrees *internal rotation*, the neck of the femur will lie parallel to the flat surface of the top of the operating table. By probing with the wire, which has been forced through the skin and subcutaneous tissue, contact is made with the center of the shaft of the femur 1½ inches below the tip of the trochanter. The drill is then held parallel to the plane of the top of the operating table. It is pointed as one would aim a rifle, toward the tip of the Allis forceps attached to the skin over the mid point of Poupart's ligament.

The wires are inserted by means of a drill fitted with a small chuck or, what has proved to be more satisfactory, a drill originally planned for the insertion of Kirsch-

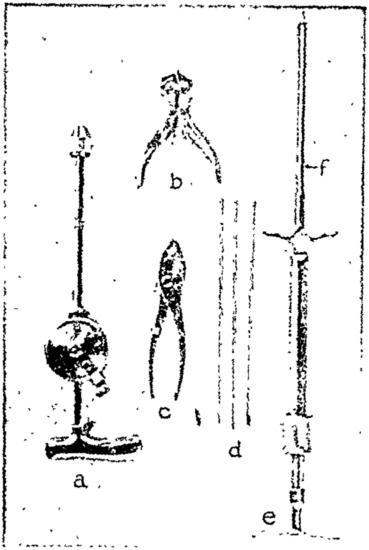


Fig. 1. Armamentarium for inserting threaded steel wires for internal fixation of intracapsular fractures of the neck of the femur. *(a)* Drill fitted with a small chuck which can be used either for inserting or withdrawing the wires. Since these wires are of a relatively small gauge, if the bone is quite hard the insertion without the use of a guide surrounding the wire may be rather difficult. For that reason, we have found it more practical to use the so-called Kirschner-Stille drill *(e)* which operates with great ease and has the advantage of a guide *(f)* which telescopes back into the drill as the threaded wire penetrates deeper into the tissues. The opening in this drill had to be re-bored to make it slightly larger in order to accommodate the threaded wires, the gauge of which exceeds that of any of the standard Kirschner wires. *(b)* Double action wire cutter. *(c)* Ordinary pliers. *(d)* The ten-inch threaded stainless steel wires. The small nuts shown are not used in the method described unless an open reduction proves to be advisable. One end of the wire is sharpened for cutting through the cortex of the bone and the other is made flat in order that it may fit into the grasping slot of the drill.

ner wires operated on the principle of a carpenter's chisel with a worm drive (Fig. 1).

After inserting one wire a second roentgenogram is made. The wire is then adjusted for depth as well as for position. Two or three additional wires are now inserted so that they enter the cortex of the femur at points forming a triangle or quadrangle. An attempt is made to crisscross the wires in transit through the neck (Fig. 2). A final roentgenogram is made and the wires are adjusted as indicated.

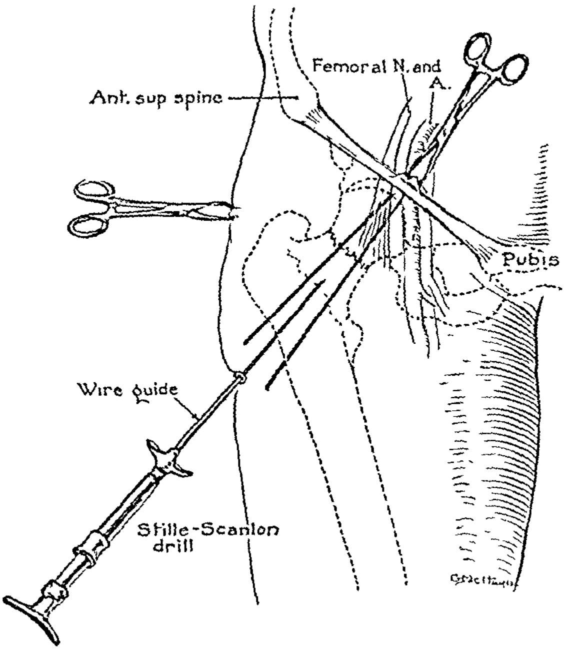


Fig. 2. Illustration of anatomical landmarks and method of insertion of the threaded steel wires.

The skin is now depressed as much as possible and the wires are cut with a heavy, double-action shear. The skin is permitted to retract, leaving the ends of the wires buried from one to two inches below the cutaneous surface. No external immobilization is necessary. The patient may be returned to her bed, with a sand bag placed on either side of the foot until she has fully recovered from the anesthetic. It is advisable to immediately elevate the head of the bed, and if there are no evidences of shock, the patient may be permitted to sit in a wheelchair on the afternoon of the day of operation. These patients may be encouraged to stand with crutches and to begin to walk with the assistance of a nurse two days after reduction. A moderate amount of soreness from the insertion of the wires may be present for from seven to 10 days. We recommend that weight-bearing be avoided for at least six months.

REPORT OF CASE

W. T., male, aged 32 years, was the first patient to be treated for fracture of the neck of the femur by means of internal fixation with threaded steel wires, without the use of plaster cast or brace. He was brought to the University of Chicago Clinics on October 21, 1936, following an automobile accident in which he sustained multiple fractures, including the pelvis, maxilla, the nose, the right wrist, and the neck of the right femur.

This patient did not have sufficient financial resources to pay for a prolonged period of hospitalization. In an institution such as the University of Chicago Clinics, which has a limited endowment, the few teaching beds available may not be assigned for many months to any one patient.

Threaded steel wires had been used by us, instead of the smooth Kirschner wire, for skeletal traction. We had found that these wires not only obtained a firm attachment to the bone in which they were inserted, but did not become loosened subsequently. Accordingly, it was decided to attempt to reduce and pin this fracture with the threaded wires. A technic similar to that described by Austin Moore was followed. On October 27, 1936, six days after the fracture occurred, the hip was reduced, using local anesthetic, and four threaded steel pins were inserted through the intact skin without making an incision. A small hand drill with a chuck was used. The wires were so inserted that their courses crossed while traversing the femoral neck. The skin was depressed as far as possible and the wires cut off so that the ends would be buried deeply in the soft tissues. No plaster cast or splint was used (Fig. 3-A).

In spite of the fact that there were other multiple injuries, the patient was able to leave the hospital on November 12, 22 days after the fracture occurred and 16 days after internal fixation of the fracture of the neck of the femur. He returned to the Clinic on December 10, 1936, seven weeks after the fracture, walking on crutches. Union occurred promptly. There was no displacement, no angulation, and he returned to his work five months after the accident (Fig. 3-B). Nine months after reducing this fracture, the wires

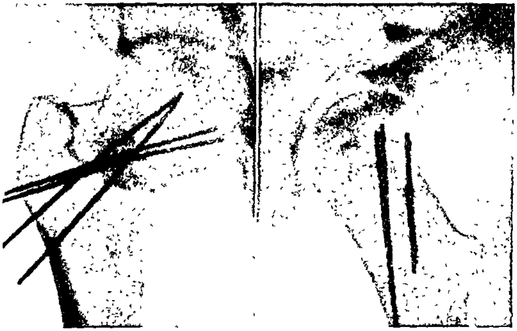


Fig. 3. *A* Antero-posterior view following reduction and internal fixation with four threaded steel wires. *B*. Lateral view six and one-half months following closed reduction and blind pinning with threaded steel wires. Solid bony union. Patient had been at work with active weight-bearing for more than two months preceding roentgenogram.

were removed because the ends protruding from the shaft of the femur, just below the trochanter, caused mild irritation and discomfort in the soft parts. At the time of removing these wires, they were found to be quite firm in the bone. As far as could be determined there was no absorption of bone about them.

Sixteen months after the automobile accident referred to above, this patient fell from a height of about 20 feet. He struck on his lower back and right side Examination revealed a compression fracture of the twelfth thoracic and the second lumbar vertebræ and multiple contusions Although he stated that much of the force of the fall was directed against the previously injured hip, it was not re-fractured.

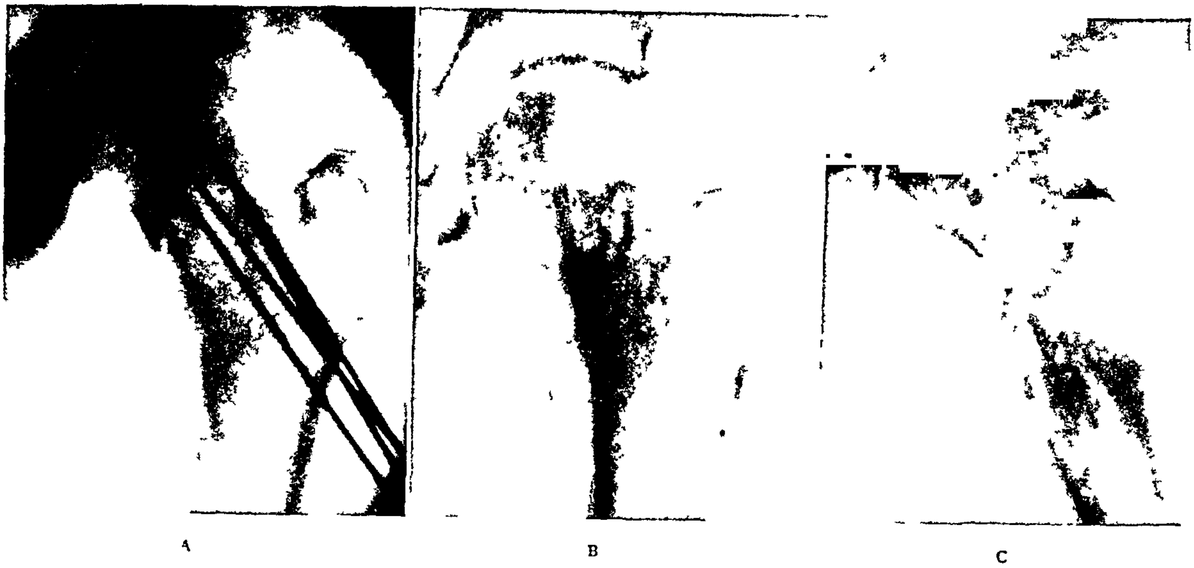
Because of the satisfactory result in the above case, all recent fractures of the intracapsular portion of the neck of the femur, which have been treated under my supervision during the past four years, have been managed in a similar manner. Patients of other surgeons in the University of Chicago Clinics, including those of Dr. Phemister and Dr. Hatcher, also have been treated by fixation with threaded steel wires.

The series is small and the time is yet too short to report an end-result study. The results thus far, however, have been imminently satisfactory (Fig. 4). In the 10 cases which I have personally treated, there have been no deaths, no non-unions, no aseptic necroses of the femoral head, no complications, and only two instances of delayed union.

As has been so well shown by Selig, smooth pins, such as Kirschner wires, afford unsatisfactory immobilization because they lack the ability to grasp the bony trabeculæ which is possessed by the threaded wires. As occurred in one of my cases, they may migrate to the surface, causing irritation of the skin and necessitate removal before the fracture has united.

DISCUSSION

The advantages of internal fixation of recent fractures of the neck of the femur were first suggested by von Langenbeck, and the successful application of a method



ig 4 *A* Roentgenogram patient d 63, one week after closed re- tion and insertion of four thread- steel pins without incision

B Antero-posterior view eleven months after closed reduction and internal fixation with steel wires

C Lateral view showing healing in normal position

nailing a fracture of the neck of the fe- r was reported by Koenig in 1878, while eries of thirteen successful cases similar- spiked, with a three-cornered nail driven ectly through the skin and followed with laster cast immobilization, was reported Nicolaysen.

The current widespread interest in meth- of internal fixation of fractures of the oral neck may be directly attributed to enthusiasm aroused by the reports of ith-Petersen and his colleagues of the cess attained by the use of a three- ged nail. Modifications of methods of ting fractures of the neck of the femur ing the past nine years have been prin- lly concerned with variations in the es of pins, nails, screws, or wires used, in the methods of their introduction. nderson, Thomas, Johansson, Knowles, scott, Moore, Telson and Ransohoff, nslen, Albee, Cubbins and co-workers, ornton and Sandison, and many others have reported their own particular variations in materials or technics.

Some of the authors advised open reduction and others were advocates of blind nailing after incising laterally to expose the femur at the level of the greater trochanter. With rare exceptions, in addition to the internal fixation advocated, these authors found it advisable, if not entirely necessary, to apply some type of plaster cast, although the period and extent of plaster immobilization was usually less than that required by the old Whitman method. The three-flanged nail which was proposed and popularized by Smith-Petersen is still the most widely used method of internal fixation. The incidence of union from various methods of internal fixation of fractures of the intracapsular neck of the femur is greater than 80 per cent. However, I rejected the Smith-Petersen nail as my method of choice because:

1. Insertion of the nail required an open

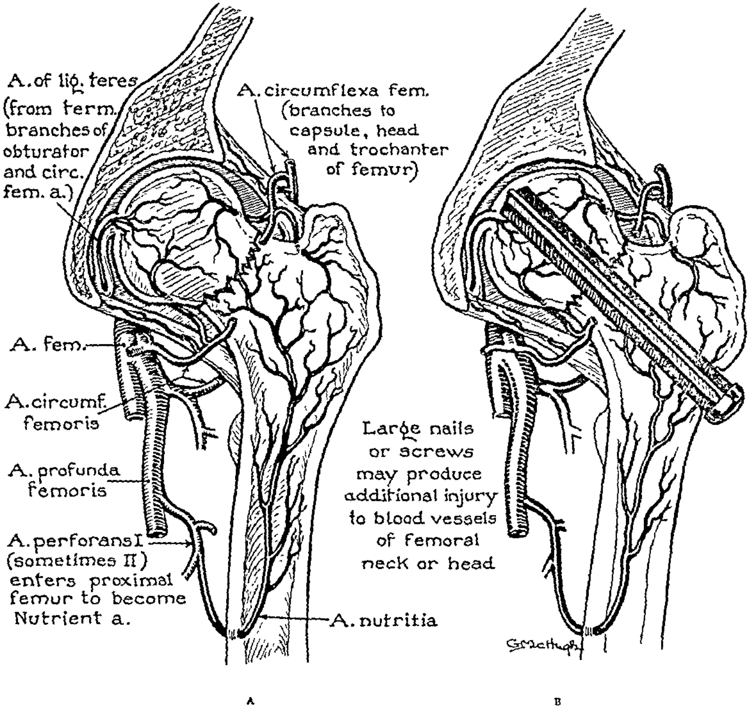

A. of lig. teres
(from term. branches of obturator and circ. fem. a.)
A. circumflexa fem.
(branches to capsule, head and trochanter of femur)
A. fem.
A. circumf. femoris
A. profunda femoris
A. perforans I
(sometimes II)
enters proximal femur to become Nutrient a.
A. nutritia
Large nails or screws may produce additional injury to blood vessels of femoral neck or head
A
B

Fig 5. *A* Illustration showing sources of blood supply to the head and neck of the femur *B*. Illustration showing how the insertion of a two- or three-bladed nail or screw of large diameter may produce additional injury to the circulation of the femoral neck or head, leading to aseptic necrosis even though union does occur.

operative procedure.

2. Theoretically, at least, it constituted a threat to intact nutrient arteries in the femoral neck or head (Fig. 5-A).

3. The continued presence in the central portion of the femoral neck and head of a three-bladed chisel may retard revascularization of the partially devitalized bone (Fig. 5-B).

4. Aseptic necrosis (Axhausen, Phemister, Santos) may follow insertion of the nail, even though union of the fracture takes place (Fig. 6).

5. Too often the nail alone does not af-

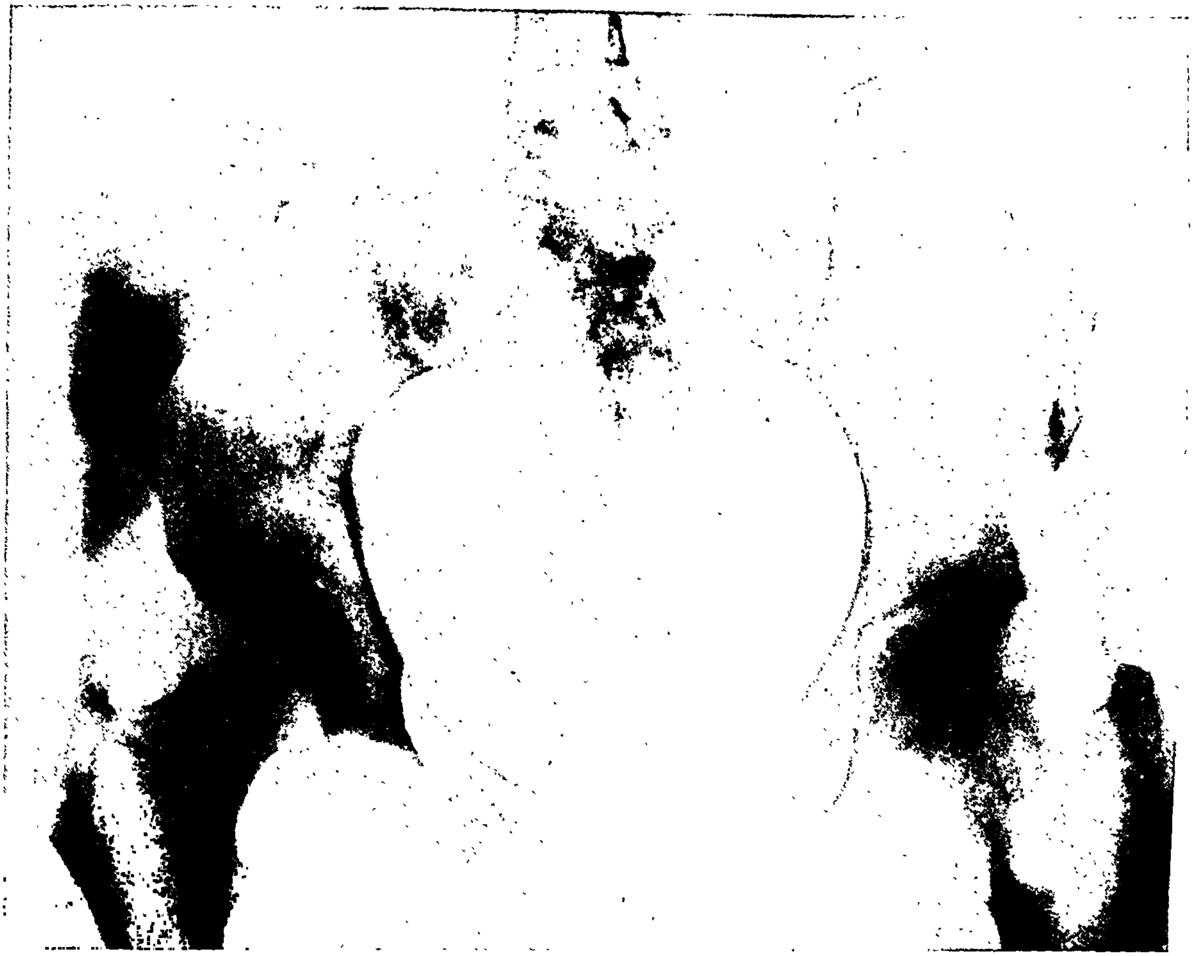


Fig. 6. Roentgenogram showing united fracture of the neck of the femur. Eight weeks after closed reduction and cast, the femoral head, as judged by the roentgenogram, was viable, but union had not occurred. Open reduction and fixation with the Smith-Petersen nail was then carried out. The fracture united, but aseptic necrosis of the head of the femur resulted. (Courtesy of Dr. D. B. Phemister.)

ford sufficiently secure fixation of the fracture to permit early ambulation without first applying a plaster cast for additional support.

In recapitulation, it is perhaps permissible for me to list some factors which may favorably influence union of recent intracapsular fractures of the neck of the femur, with subsequent physiologic function in the extremity.

1. Early reduction after the fracture injury.

2. Accurate reduction, as demonstrated in both anterio-posterior and lateral roentgenograms.

3. Creation of a position of valgus (Pauwels) to eliminate shearing force.

4. Internal fixation by a method least likely to injure nutrient blood vessels or to prevent revascularization.

5. Early mobilization with passive and active motion in all joints of the extremity.

6. Delayed weight-bearing for at least

six months, to permit the maximum degree of revascularization of the femoral head.

Advantages of the ambulatory treatment of recent fractures of the neck of the femur, following closed reduction and threaded wire fixation are:

1. The incidence of hypostatic pneumonia in elderly individuals may be reduced.

2. The patient may sit upright in bed or in a wheelchair immediately after closed reduction and internal fixation by this method.

3. The patient may become ambulatory, if not too feeble, on the second or third day following reduction.

4. Hospitalization may be shortened to from four to seven days.

5. The method is relatively atraumatic.

6. Immediate and accurate reduction, adequate immobilization of the fracture, *with early mobilization of the various joints* of the extremity, are factors which may reduce the incidence of aseptic necrosis.

7. Circulation of blood and lymph in the injured limb, with improved muscle tone and tissue turgor in the entire body, is enhanced by physical activity and is desirable provided this does not endanger the immobilization of the fracture itself.

8. The small threaded wires neither endanger to any appreciable extent surviving branches of the nutrient arteries of the femoral neck or head, nor do they obstruct attempts at revascularization.

9. The incidence of union in our own experience has been infinitely better than by any other method which has been tried in this Clinic. The patient is spared the unpleasant experience and often serious results of long plaster cast immobilization.

10. Atrophy of disuse of bones and muscles does not occur to any appreciable extent when this method is carried out.

11. Reduction of the period of hospitalization from several months to a few days greatly decreases the economic strain upon the patient and works to the advantage of the surgeon, who, too often, is deprived of a fee because the patient's financial resources are more than exhausted by the requirements of the hospital alone.

This method, in combination with tibial bone grafts, has been successfully applied in the treatment of old ununited intracapsular fractures of the neck of the femur (Compere and Lee).

SUMMARY

Recognition of the fact that accurate internal fixation will result in union of at least 80 per cent of fractures of the neck of the femur has greatly improved the prognosis in injuries of this type.

There is some evidence that large flange nails, which occupy a considerable portion of the diameter of the femoral neck, may result in further injury to the circulation or interfere with revascularization of the femoral head.

In this paper I have demonstrated the use of threaded, stainless steel wires of a diameter so small that blood vessels are not greatly endangered, nor is revascularization obstructed. This method has been quite successful in a small series of cases. For the surgeon who is trained in mechanical methods and who understands orthopedic principles, it is entirely safe. No cast is required and the wires can be inserted with a hand drill without making any incision, with the use of either local or general anesthesia. The period of hospitalization has been shortened to an average of about ten days and the period of recumbency in bed to from twenty-four hours to six days. The holding power of the wires has been shown to be as great as that of any of the other more commonly used larger pins or nails.

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RÉSUMÉ

Traitement ambulatoire des fractures nouvelles

La reconaissence du fait que correcte fixation interne a comme résultat l'union dans 80% au moins des fractures du cou fémoral, a énormement amélioré le pronostic dans lésions de cette sorte.

Il semble que des clous avec de pas gros rebord qui occupent une partie considerable du diamètre du cou fémorale peuvent résulter en ulterieurs dommages pour la circulation ou peuvent déranger la révascularization de la tête fémorale.

Dans cet ouvrage j'ai démontré l'usage de fils d'acier à trousse inoxidables d'un diamètre si petit que les vaisseaux sanguins ne sont pas beaucoup exposés au danger ni la vascularization est obstruite. Cette méthode a eu bon succès dans une petite série de cas. Pour le chirurgien qui est trainé avec les méthodes mechaniques et qui sait les principles de l'ortopedie, cette méthode est très sure. Pas de moule est necessaire et les fils peuvent être insérés avec une machine à forer à main sans faire aucune incision, en employant anesthesie locale ou generale. La période de hospitalization a été réduite à une moyenne de presque 10 jours et la période de repos à lit de 24 heures à 6 jours. Les fils sont capables de fixer autant que tout autre moyen plus communement employé, comme épingles ou clous plus grands.

ZUSAMMENFASSUNG

Die ambulatorische Behandlung von frischen Brüchen

Die Erkenntniss der Tatsache, dass genaue innere Fixation, in mindestens 80% der Fälle eines Schenkelhalsbruches, eine Vereinigung zur Folge hat, hat die Prognose derartiger Verletzungen bedeutend verbessert.

Es sind einige Beweise welche dafür sprechen, dass lange Flanschnägel, welche einen beträchtlichen Teil des Durchmessers des Schenkelhalses einnehmen, weitere Schädigungen der Circulation zur Folge haben, und die Gefässneubildung im Kopt des Femur beeinträchtigen.

In diesem Artikel habe ich auf den Gebrauch von fadenförmigen Drähten aus nichtrostendem Stahl hingeweisen, deren Durchmesser so klein ist, dass weder Blutgefässe sehr gefährdet sind, noch die Gefässneubildung gehindert ist. Diese Methode war in einer kleinen Anzahl von Fällen ziemlich erfolgreich. Es ist ein vollkommen sicheres Verfahren, für den Chirurgen der in mechanischen Methoden ausgebildet ist und der die orthopädischen Principien beherrscht. Ein Gipsverband ist nicht nötig und die Drähte können ohne Incision unter lokaler oder allgemeiner Anesthesie, mit einem Handbohrer eingeführt werden. Der Spitalsaufenthalt wurde durchschnittlich auf zehn Tage und die Bettruhe auf eine Dauer von zwischen vierundzwanzig Stunden und sechs Tagen, verkürzt. Die Widerstandskraft der Drahte erwies sich als die gleiche, wie die der mehr allgemain verwendeten grosseren Nadeln und Nageln.

RESUMEN

Tratamiento ambulatorio de fracturas recientes

Reconocimiento que fijación interna exacta resultará en unión en los 80 por ciento de los casos de fractura del cuello del femur ha mejorado mucho el pronóstico en daños de este tipo.

Hay evidencia que los clavos grandes que ocupan una parte considerable del diámetro del cuello femoral pueden resultar en daño adicional a la circulación o pueden interrumpir la revascularización de la cabeza del femur.

En el presente papel, he demostrado el empelo de hilo de acero de diametro tan pequeño que los vasos no encuentran peligro, ni tampoco se obstruye la revascularización. El dicho método ha tenido bastante éxito en una serie limitada de casos. Para el cirujano que está bien instruído en metodos mecánicos y que entiende bien los principios ortopédicos, es completamente seguro y sin peligro. No es preciso emplear un forma de estuco y los hilos pueden insertarse empleando taladro de mano sin hacer ninguna incisión, con anestesia local o general. El tiempo de hospitalización ha sido reducido a un por medio de diez días, y el tiempo de reclinación en cama a un rato de desde veinticuatro horas a seis días. La fuerza agarradora de los hilos es tan grande como la de los clavos o alfileres mas grandes, de uso ordinario.

RIASSUNTO

Trattamento ambulatorio delle fratture recenti

Il riconoscimento del fatto che accurata fissazione interna ha come risultato l'unione in almeno 80% delle fratture del collo del femore, ha enormemente migliorata la prognosi di lesioni di questo genere. E possibile che chiodi a non larga capocchia che occupino una parte considerevole del diametro del collo femorale possano risultare in ulteriore danno alla circolazione o possano in-

terferire con la rivascolarizzazione della testa del femore.

In questo lavoro ho dimostrato l'uso di fili a treccia di acciaio inossidabile di un diametro così piccolo che i vasi sanguigni non sono molto danneggiati nè la vascolarizzazione è ostruita. Questo metodo ha avuto successo in una piccola serie di casi. Per il chirurgo che è allenato ai metodi meccanici e che è al corrente dei principi di ortopedia,
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INTERNATIONAL ASSEMBLY

The next International Assembly of the International College of Surgeons will be held in August, 1941, in Mexico City, Mexico. Members of the United States Chapter may write to Dr. Desiderio Román, President Elect, 270 South Seventeenth Street, Philadelphia, Pennsylvania, for information.

The Treatment of Old Ununited Infected Fractures

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OLD ununited infected fractures are sequelæ of compound fractures, of the operative treatment of simple fractures, and of pathologic fractures occurring in osteomyelitic bones. Occasionally they are the result of a too determined effort on the part of the surgeon to save an extremity that might better have been sacrificed in the beginning. More frequently they are the result of (1) faulty treatment, due to inadequate or improper surgery combined with lack of proper approximation and fixation of the fragments; or (2) a severe infection which, in spite of satisfactory treatment, produced osteomyelitis, sequestration, and loss of bone substance with resultant non-union. In this latter group, the compound comminuted fracture is the chief offender.

The treatment of ununited infected fractures presents a triple challenge to the surgeon. First, how to splint and adequately fix the fracture in the presence of the infection. Second, the treatment of the infection itself, and third, how best to secure union. It has been our practice in the past to follow a conservative method of treatment, attacking one of these problems at a time. We have considered treatment of the old infected ununited fracture to be clearly divided into three stages:

1. Treatment of the infection.
2. A period of waiting to avoid recurrence of infection.
3. Treatment of non-union.

Stage I.—Treatment of the infection in old infected, ununited fractures is essentially the treatment of a localized osteomyelitis of the fragment ends, associated frequently with soft tissue abscess formation. The fundamental principles of the treatment are the removal of sequestra and adequate drainage of the abscess pockets. Fixation of the part is necessary, either on splints with provision for chemical irrigation of the wound, or by the more common method at the present day of vaseline packs and plaster fixation. Occasionally by following this method of treatment of the infected ununited fracture, the infection has healed with bony union of the fracture. More frequently, however, the treatment resulted only in clearing up of the infection and healing of the wound, which are the primary aims of this phase of therapy.

Stage II.—Because of the experiences in the First World War, a period of delay of at least six months after complete soft tissue healing of such an infected ununited fracture has been the practice before any operative procedure to obtain union. This dictum has seemed sound and was followed in our early cases, extending the delay period in 50 per cent of our cases to one year with no seeming benefit. Skin grafts to cover epithelialized areas have sometimes been performed during this stage.

Stage III.—After the period of delay to make sure infection was not apt to recur, various operative procedures to obtain union have been utilized. These consisted principally of freshening the bone ends with approximation and fixation, either internally at the fracture site or with pins through the fragments. More rarely bone grafts were used.

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It has been recognized that radical surgery with excision of the osteomyelitic areas, freshening of the bone ends, and internal fixation of the fracture might result in more frequent and earlier union. However, the fear of extending infection from a localized osteomyelitis to a generalized process has perpetuated the conservative treatment outlined above.

For the past five years we have slowly but increasingly deviated from the conservative therapy to what seemed to us a more radical procedure. Sherman, Orr and, more recently, Campbell, have advocated resection of the local osteomyelitic bone, with internal fixation of the fracture by plates or pins. They have packed the wound wide open and applied splints or plaster for external fixation. Stimulated by their work, we have followed their teachings against our surgical judgment. The fundamental principle, which is of greatest importance in this radical procedure, is the satisfactory drainage of all abscess cavities and assurance of continued draining by packing the wound wide open. Following this principle, we have been amazed at the impunity with which one can operate upon these infected fractures, resect the osteomyelitic areas, freshen the bone ends, and maintain approximation by internal fixation.

In the past five years we have treated 25 cases of infected ununited fracture by this more radical one-stage method. In none of these cases have we yet had the courage to use plates as internal fixative agents, but we feel that the experiences of Sherman and, more lately, of Campbell demonstrate the feasibility of this type of fixation. Their reports make their technic seem an added possibility for better fixation and more certain union than that obtained with the Smith bone clamp or wire fixation. We have also applied this same principle to pathologic fractures of osteomyelitic bones in several cases, but we are not reporting these results as we wish to confine this paper entirely to ununited infected fractures.

These patients had all been ill for at least several months and so were in the chronic stage of their infection. For this reason, they showed variable evidence of general debility, marked loss of weight associated with a subnormal appetite and dehydration. The hemoglobin was almost constantly reduced. The local lesions in these patients presented either draining sinuses or wide open infected wounds. The fracture fragments frequently protruded through the skin and lay in a bed of infected granulation tissue. The surrounding skin was commonly irritated and macerated by prolonged exposure to the drainage. Generally, there were undrained soft tissue abscesses surrounding the fracture. If these abscesses were large there was considerable fever. Previous long splinting had caused fixation of adjacent joints, and pressure from this fixation, with long periods in bed, had resulted in decubiti over the bony prominences. Palsies from pressure over superficial nerves were not uncommon.

X-ray examination of the extremity usually showed malposition and malalignment of the fragments. The bone ends showed either atrophic non-union with rounding and absorption of the lime salts, in which case there was separation of the fragments with soft tissue interposition, or the non-union was of the sclerotic type, with severely increased X-ray opacity and with the fragments in contact. Multiple sequestra were the rule and they were found between the fragments, or beside one of the fragments, in which case they were frequently due to non-viable comminuted pieces from the original fracture. Frequently, the sequestra were located within the cortex of one fragment, and were due to the osteomyelitic process. Osteomyelitis of the fragments was further demonstrated by irregular areas of bone absorption interspersed with evidence of bone regeneration. There was usually periosteal reaction about the bony cortex adjacent to the fracture site.

The general treatment of the patient was given first consideration. It was our custom to give fluids, transfusions and other supportive medications before any surgery other than the emergency drainage of abscesses was carried out. In the more recent cases, sulfanilamide was given orally before operation and implanted locally at the operative procedure. With the application of these supportive measures, the general condition of the patient became satisfactory comparatively quickly in most cases and, when this had been accomplished, the active treatment of the fracture was instituted.

Under general anesthesia the fracture sites were exposed with an incision usually excising the sinus tract. Small abscesses about the fragments were drained. Sequestra lying outside the bony cortices were removed. Scar tissue between the fragment ends was excised and the fragments were resected until fresh bleeding bone was obtained. If gross osteomyelitis was present, the fragments were saucerized to obtain drainage and to remove sequestra from within the cortex. After this was accomplished, the fragments were properly aligned and placed in contact. Internal fixation was used when it appeared necessary to maintain approximation and gave no apparent difficulty. In any event, the wound was widely packed open with vaseline gauze, with no attempt at closure. Ample dressings were applied, followed by a cast immobilizing the joints adjacent to the fracture. The wound was thus treated as an osteomyelitis by the method long advocated by Orr.

Culture of material removed at these operations showed staphylococcus aureus to be the usual organism. Streptococcus hemolyticus and *B. welchii* each were found in one case in this series. *B. coli* was frequently found along with one of the above. In no case was a positive blood culture obtained following operation, although in a few cases septicemia was suspected and cultures were taken. Usually, however, the procedure was carried out without consequent serious reaction. A study of the temperature charts showed that there was commonly less fever three or four days after the operation than preoperatively. In no case was there prolonged severe elevation of temperature and there were no mortalities.

After this primary operative procedure, transfusions and other generalized sustaining treatment were carried out as indicated. The dressings and cast were changed at intervals which averaged about once per month. Attention was always given to keeping the wound widely packed open. Careful fixation in plaster was maintained. If internal fixation was used it was removed when the fragments became fixed by callus and before the operative wound was allowed to heal. Frequently X-ray examinations were made with the cast removed, and when further sequestra arose they were removed. If further abscesses developed, they were drained.

CASE REPORTS

The following group of brief case reports, together with roentgenograms of each case, is presented as illustrative of this series.

We have not followed strictly what we have described as the one-stage method in all cases, and in Cases 1 and 3 of this selected group, the three-stage method was more nearly used with excellent results. The remainder were treated by the more radical one-stage method, with failure of union in Cases 8 and 9, and with deformity in Case 6.

CASE I.—J. B., a man, aged 25, was in an automobile accident January 7, 1938, sustaining a compound fracture of the right tibia and fibula at the junction of the upper and middle thirds. Immediate reduction was done without debridement and a cast was applied. He was admitted to the hospital on January 18, 1938, with

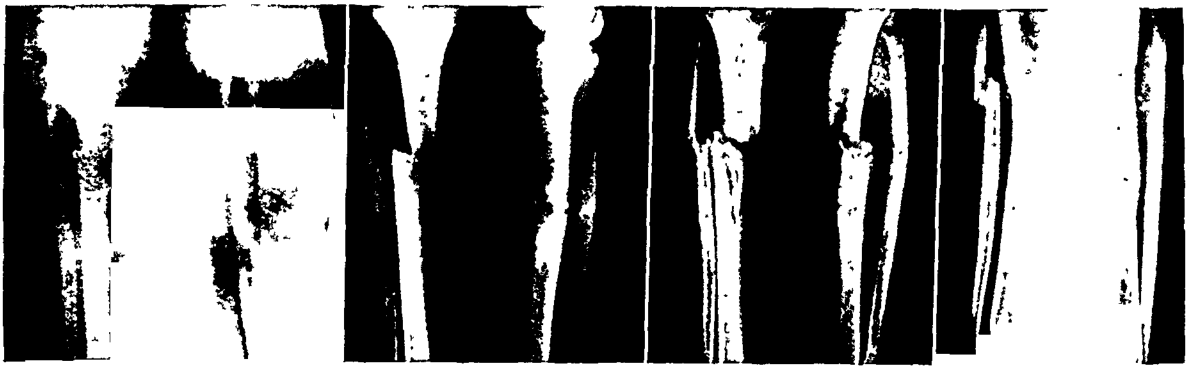


Fig. 1—Case 1. *A*. Roentgenogram taken on admission of patient, showing fracture of right tibia and fibula. Dakin tubes had been inserted for irrigation before admission. *B*. Two months after admission, showing sequestra with lateral displacement of distal fragment. *C*. Further sequestration of comminuted fragment in distal portion. *D*. Final result, showing solid union.

a grossly infected wound. Fragments of the tibia were protruding. The wound was widely opened and Orr packs and cast were applied. Sequestrectomy was done on May 2, 1938, and on July 11, 1938, additional sequestra were removed from the tibia and the bone ends were freshened and aligned. The incompletely united fibula was separated by manipulation and allowed to override in order to approximate the tibial fragments. There was solid bony union by May, 1939, with slight continued drainage (Fig. 1).

CASE 2.—F. Mc., a man, aged 30, fell from a ladder in July, 1936, sustaining a compound fracture of the left radius and ulna. He was treated by manipulation and cast. The wound became infected. He was admitted to the hospital in October, 1936, with a draining sinus over the ulna and an abcess about the radius. There was a segmental fracture of the radius, with evidence of sequestration of the comminuted fragment with non-union of both bones. On admission the abscess was drained and widely packed open with Orr packs. On December 29, 1936, the sequestrated segmental fragment was removed and the Orr treatment was continued. Drainage persisted until May, 1937. There was continued non-union of both bones. On March 18, 1938, open reduction was done. The ulna was shortened. The radial fragments were freshened and the proximal fragment was thrust into the distal fragment. There was no recurrence of infection and after five months both bones were clinically solid. Roentgenograms one year after operation showed solid union with moderate radial deviation (Fig. 2).

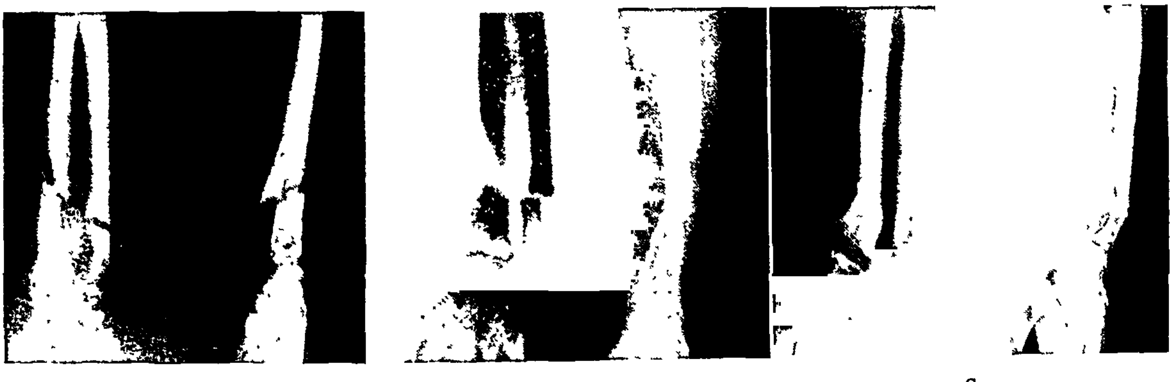
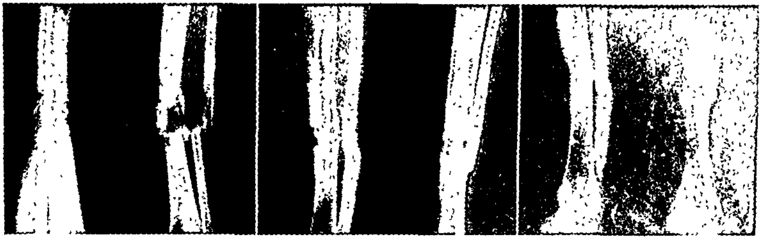


Fig. 2—Case 2 *A*. Roentgenogram taken on admission of patient, showing non-union of both bones and non-viable segmented fragment of the radius. *B*. Roentgenogram showing sequestrum removed with soft tissues healed, but lack of contact of radius with non-union of both bones. *C*. Final result after shortening of ulna and thrusting of proximal radial fragment into distal fragment, with moderate radial deviation.



[illegible] sion of patient, showing non-union of the [illegible] wound. *B*. Roentgenogram after freshen- [illegible] bone chips *C*. Final result, showing bony union.

CASE 3.—P. P., a man, aged 19, was in a motorcycle accident on May 16, 1932, sustaining a compound fracture of the right tibia and fibula at the lower and middle thirds. The wound was debrided and a bone plate was applied. Infection followed. The plate was removed and sequestrectomy was done in October, 1932. He was admitted to the hospital on October 21, 1932. There was non-union of the tibia, with an infected wound over its medial side Two days after *admission sequestrectomy was done and the tibia* was aligned. Union of the fibula prevented close approximation of the fragments. By May, 1933, drainage had almost stopped and there was an incomplete fibrous union. The patient was given a leather cone with a walking caliper. He failed to return until February, 1936. The soft tissues were then healed but there was non-union of the tibia. The scar was excised and a skin graft was done. On April 18, 1936, the tibial fragments were freshened and a thrust type of graft was applied. The hiatus between the tibial fragments was filled with bone chips and the fibula was not osteotomized. Mild infection recurred, causing the removal of a portion of the graft Solid bony union was present by March 1, 1937, but slight drainage continued until August, 1938 (Fig. 3).

CASE 4.—E. C., a man, aged 26, sustained a simple fracture of the left femur March 14, 1936. An open reduction was done the following day and a bone plate was applied. A fragment was also wired. Wound infection followed. On July 13, 1936, the incision was opened and the plate was removed. He was admitted to the hospital on August 10, 1936, with an ununited infected fracture The fragments were overriding and contained multiple sequestra, as well as foreign material from previous internal fixation. On August 15, 1936, a sequestrectomy was done and the bone ends were freshened and aligned. Alignment still was not satisfactory and on August 27, 1936, the fragments were again approximated and a Smith bone clamp was applied. Orr packs and hip spica were used. The Smith clamp was removed January 14, 1937, at which time there was solid clinical union. Roentgenograms showed solid union with healed soft tissues in May, 1937 (Fig. 4).

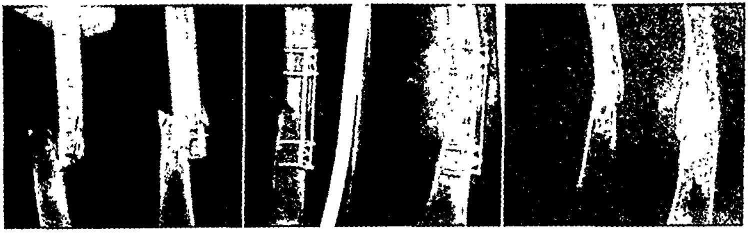


Fig. 4—Case 4. *A*. Roentgenogram taken on admission of patient, showing non-union of the femur with overriding of fragments, multiple sequestra and foreign material from previous internal fixation. *B*. Roentgenogram after sequestrectomy, freshening of fragment ends and application of Smith bone clamp *C*. Final result, showing solid union with healed soft tiss

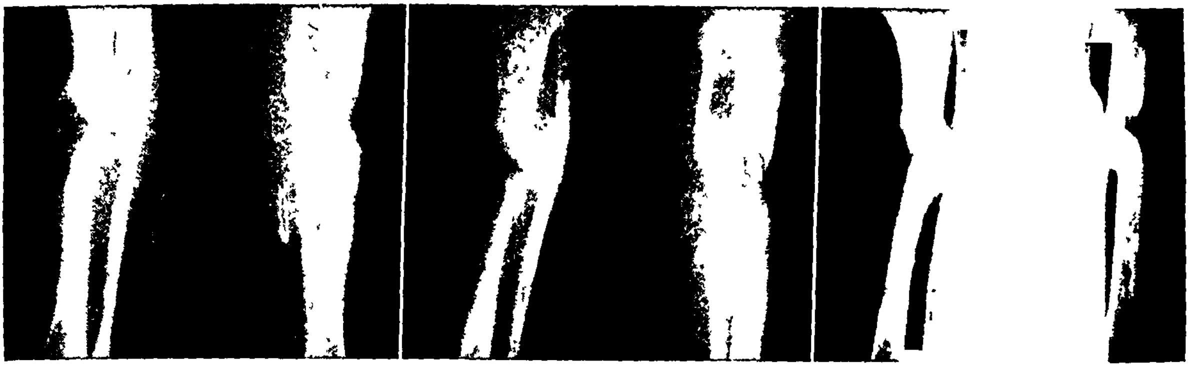


Fig. 5—Case 5. *A*. Roentgenogram taken on admission of patient, showing comminuted segmental fracture of tibia, non-union with sequestration of comminuted fragments. The fibula is healed. *B*. Roentgenogram taken after removal of sequestra, but there is a large viable fragment partially bridging the fracture which has been left in place. *C*. End-result, showing solid union.

CASE 5.—F. C., a man, aged 39, was in an automobile accident in October, 1936, suffering compound fractures of the left tibia and fibula. He was treated with skeletal traction for four months and then with a cast. Infection of the compound wound occurred. He was admitted to the hospital on July 16, 1937, with an ununited comminuted segmental fracture of the left tibia in the middle third and sequestration of the comminuted fragments. There was union of the fibula with draining sinuses over the tibia. On July 22, 1937, a sequestrectomy was done, but a large comminuted viable fragment was left partially bridging the fractured tibia. The tibial fragments were freshened but the fibula was not refractured. Orr packs and a cast were applied. By December, 1937, there was evidence of clinical union. A small sequestrum was removed in April, 1938, and by June, 1938, roentgenograms revealed solid union and the soft tissues were healed. The patient was walking with a brace (Fig. 5).

CASE 6.—N. W., a man, aged 25, was in an automobile accident May 13, 1933, sustaining a simple fracture of the right femur. He was treated with traction, cast, and finally by open reduction and the application of a bone plate on July 1, 1933. The operative wound became infected and the plate was removed August 18, 1933. He was admitted to the hospital on August 26, 1933. There were three draining sinuses in the operative scar. There were abscesses of the soft tissues, with non-union of the femur and sequestration of the fragmented ends. On August 31, 1933, incision and drainage of the abscesses and removal of sequestra from between the fragments were done. The wound was packed open with Orr packs and a spica was applied. This was followed by a change of dressings and cast at about six-week intervals for the next twelve months. An additional sequestrum was removed in September, 1934. The femur was then clinically solid. Plaster fixation was continued until January, 1936, when there was also solid union, as shown by roentgenograms. The soft tissues were healed. There was marked lateral bowing at the fracture site (Fig. 6).

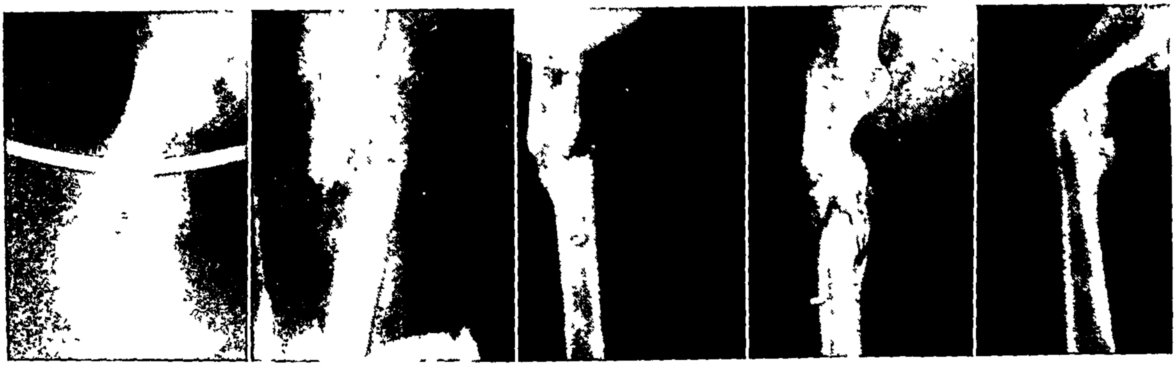


Fig. 6—Case 6 *A*. Roentgenogram taken on admission of patient, showing non-union with sequestration of fragment ends Note screw from previous plate. *B*. Fixation in cast with loss of position *C*. Improved position with early fibrous union. D Incomplete union eleven months after admission, with formation of sequestrum *E* Final result, showing solid union with severe lateral bowing.

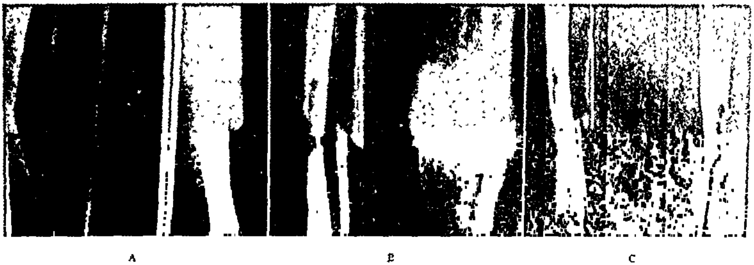


Fig 7—Case 7. *A* Roentgenogram taken on admission of patient, showing non-union with medial bowing of the tibia and proximal fragment protruding from the soft tissues. *B.* Roentgenogram after freshening and aligning bone fragments and fixation in cast *C.* Final result, showing solid bony union.

CASE 7.—W. B., a man, aged 29, was in an automobile accident in December, 1937, sustaining a simple fracture of the left tibia and a comminuted fracture of the left fibula. He was treated with a cast for six weeks and then had an open reduction of the tibia and a bone plate was applied. There was severe infection of the operative wound and the plate was removed six weeks later He was admitted to the hospital on March 7, 1938, with non-union and with the proximal tibial fragment protruding outside the soft tissues. On the day after admission, the granulation tissue was removed from between the bone ends and the ends were freshened and aligned The sequestra were removed. Orr packs and a cast were applied. Repeated dressings and casts were applied as needed There was solid union by January, 1939, but the soft tissues were not completely healed until May, 1939 (Fig. 7).

CASE 8.—W. A., a man, aged 38, sustained a simple fracture of the right femur in April, 1937, when a tractor upset. He was treated by open reduction and bone plate. The wound became infected. In January, 1938, the plate was removed and the wound packed open He was admitted to the hospital on June 23, 1938. There was profuse drainage. The fragments of the femur were protruding from the open wound and were separated by granulation tissue. On June 27, 1938, sequestra were removed from the bone ends, the bone ends were freshened, aligned, and fixed in position with a Smith bone clamp. Orr dressings and a cast were applied. On September 14, 1938, the Smith bone clamp was removed and the Orr treatment was continued Although the soft tissues were healed by April, 1939, bony union failed to be obtained The patient has been advised to return for a bone graft, but has not done so to date (Fig. 8).

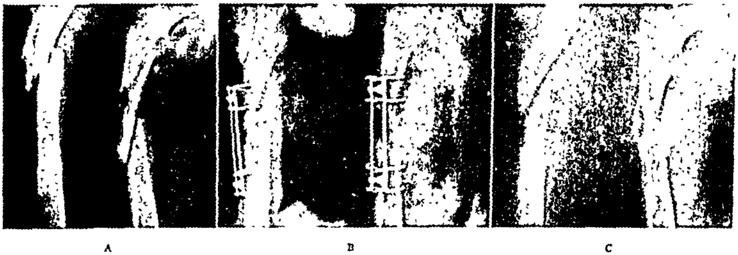


Fig 8—Case 8 *A* Roentgenogram taken on admission of patient, showing non-union with overriding of fragments and the proximal fragment protruding outside the soft tissues *B.* Roentgenogram after freshening fragments, alignment and fixation with Smith bone clamp. *C.* Final

Chart I. 25 Cases of Ununited Infected Fracture

INITIALS	AGE	ORIGINAL INJURY	ORIGINAL TREATMENT OF FRACTURE	TIME BEFORE ADMISSION	TREATMENT OF INFECTED FRACTURE	RECONSTRUCTIVE SURGERY	FINAL OUTCOME	TIME FROM ADMISSION TO UNION
J. B. Case 1	25	Compound fracture right tibia and fibula.	Manipulation and cast without debridement.	11 days	Open alignment of fragments. Later sequestrectomy with freshening of fragments.	None	Solid union. Slight persistent drainage.	16 months
F Mc Case 2	30	Compound fracture left radius and ulna. Segmentation radius.	Manipulation and cast.	3 months	Incision and drainage of abscess. Later removal of sequestrated segment.	Ulna shortened. Proximal radial fragment freshened and thrust into distal frag/ment.	Solid union Healed soft tissues.	22 months
P P Case 3	19	Compound fracture right tibia and fibula.	Debridement. Application of bone plate to tibia.	5 months	Sequestrectomy with alignment of fragments. Healed fibula prevented contact of tibia.	Thrust type of bone graft. Hiatus filled with chips.	Solid union Healed soft tissues.	53 months
E C Case 4	26	Simple fracture left femur.	Open reduction and bone plate. Infected operative wound.	5 months	Sequestrectomy. Bone ends freshened and aligned. Smith bone clamp.	None	Solid union Healed soft tissues.	9 months
F C. Case 5	39	Compound comminuted fracture left tibia. Fractured fibula.	Skeletal traction. Later placed in cast.	9 months	Sequestrectomy. Bone fragments freshened.	None	Solid union. Healed soft tissues.	11 months
N W. Case 6	25	Simple fracture right femur.	Traction and cast. Later open reduction and bone plate. Infection.	3 months	Incision and drainage of abscess. Sequestrectomy and freshening of fragments.	None	Solid union. Healed soft tissues.	29 months
W. B. Case 7	29	Simple fracture left tibia. Comminuted fracture fibula.	Open reduction and bone plate. Wound infection.	4 months	Sequestrectomy. Bone ends freshened and aligned.	None	Solid union. Healed soft tissues.	10 months
W. A. Case 8	38	Simple fracture right femur.	Open reduction and bone plate. Wound infection.	14 months	Sequestrectomy. Fragments freshened and aligned. Smith bone clamp.	To have open reduction and bone graft.	Non-union. Soft tissues healed after 8 months.	Non-union
F. N. Case 9	39	Simple supracondylar fracture left humerus.	Open reduction with wire internal fixation. Infected operative wound.	9 months	Drainage with removal wire. Fragments freshened later. Poor approximation.	Open reduction and onlay graft. Later fracture of graft. Repeat operation with infection.	Non-union with drainage after 36 months from admission.	Non-union
J. S. Case 10	12	Compound fracture left radius and ulna 3 inches above wrist.	Manipulation and cast. Incision and drainage of abscess.	6 weeks	Sequestrectomy ulna. Alignment of fragments.	None	Solid union in good position. Healed soft tissues.	3 months
R. R. Case 11	38	Compound fracture right radius and ulna.	Fixation in splint.	4 weeks	Incision and drainage of abscess. Sequestrectomy of lower radial fragment.	None	Non-union and continued drainage after 16 months.	Non-union
G. L. Case 12	52	Compound comminuted fracture of left tibia.	Fixation by skeletal traction. Removal of sequestrated fragment.	7 months	Sequestrectomies at three different times.	None	Solid union. Slight drainage after recent sequestrectomy.	9 months
M. F. Case 13	25	Compound fracture left tibia and fibula.	Debridement. Collins bone clamp. Wound closed.	1 month	Sequestrectomy. Removal of bone clamp. Later further sequestrectomy and freshening of bone ends.	None	Solid union. Healed soft tissues.	21 months

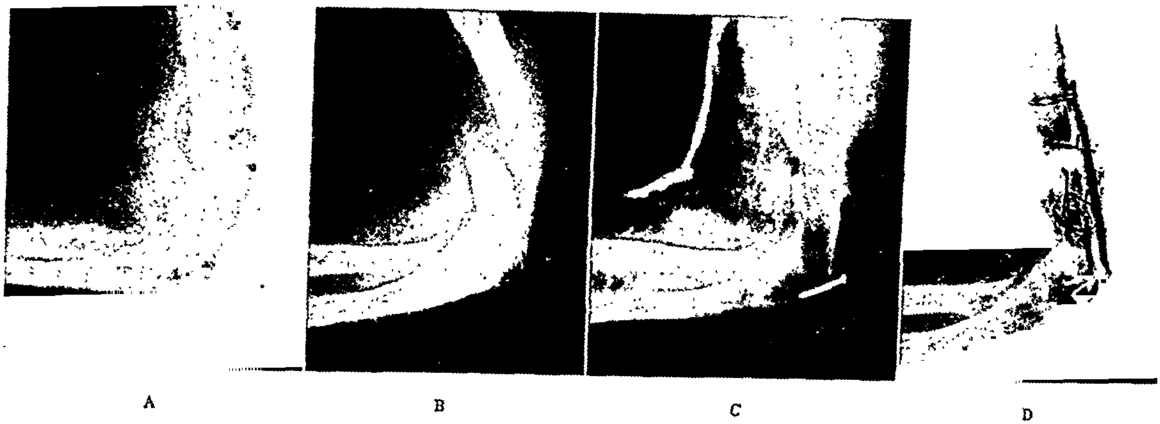


Fig. 9—Case 9. *A.* Roentgenogram taken on admission of patient, showing non-union, the wire failing to fix the distal fragment. *B.* Roentgenogram after removal of the wire and freshening of the fragments. Failure to use internal fixation resulted in loss of approximation. *C.* Approximation after first bone graft. *D.* Sequestration of graft and absorption of fragments following infection after second bone graft.

CASE 9.—F. N., a man, aged 39, sustained a simple supracondylar fracture of the left humerus on May 30, 1936. He was treated by manipulation and fixation in a cast and, finally, by open reduction and wiring of the fragments in December, 1936. The operative wound was infected. He was admitted to the hospital on July 7, 1937, with non-union and with a draining sinus posteriorly over the fracture site. The wire failed to fix the lower fragment which was overriding anteriorly. Two days later, the sinus was widely opened and the wire was removed. The wound was widely packed. The drainage persisted and on February 18, 1938, the fragments were exposed, freshened, and approximated. Packs were again applied. No internal fixation was applied and the approximation was lost. The drainage had stopped by July, 1938, and on January 17, 1939, the bone ends were again freshened and an onlay graft was applied. There was no recurrence of the infection. Union appeared to be beginning when the patient fractured the bone graft and non-union resulted. On January 19, 1940, open reduction with a bone graft was again done. Infection followed this operation. The graft sequestrated and has since been removed. The result is a continued non-union with drainage (Fig. 9).

A brief but comprehensive report of the outstanding features of the 25 cases of infected ununited fractures is presented in Chart I. It will be noted that four of these cases were admitted either immediately after injury or within a period up to eleven days afterward. Four more were admitted during the first six weeks. These cases are included because they went on to severe infection, delayed union, and necessitated the type of treatment under discussion. The remaining 17 cases were admitted after periods varying from two to forty-six months, and averaging ten months after injury.

Of the 25 cases, 18, or 72 per cent, were originally the result of compound fractures. Simple fractures, with infected operative wounds, were responsible for 7 cases, or 28 per cent. (See Chart I.)

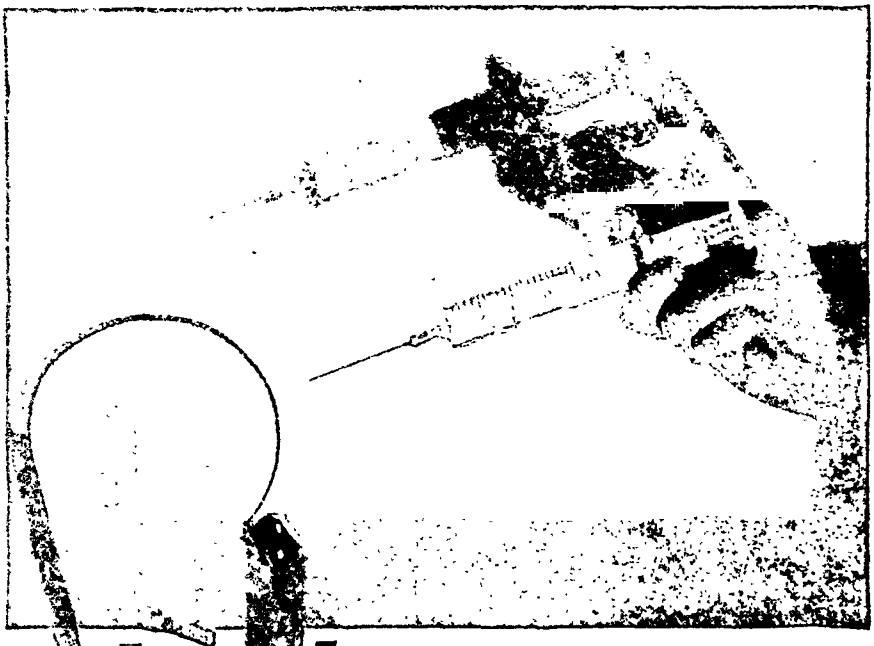
A summation of the results of treatment is presented in Chart II.

CHART II

RESULTS OF TREATMENT

	CASES	PER CENT
Bony union..............	18	72
Bony union with healed soft tissues.............	15	60
Bony union with persistent drainage	3	12
Non-union with healed soft tissues	3	12
Non-union with persistent drainage	4	16
Amputation for persistent non-union and infection.	1	4

The end-results of the treatment demonstrate the marked delay in obtaining union, the time period extending months beyond the usual time for union of the bones involved. The average period of healing in those cases obtaining bony union was fifteen months. If Case 3, who was out of our control for over two years during his period



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of treatment, is not counted, the average is thirteen months

CONCLUSIONS

Although it is recognized that the number of cases presented in this study is insufficient to draw any conclusions, they do serve to emphasize the principles long taught by Orr, namely, that the proper treatment of infection in bone is complete drainage, apposition, and complete fixation As judged by these cases, there is no great danger in the opening of already infected wounds and cleaning away sequestra and debris between the fragments, as long as the wound is widely packed open following this procedure However, if the infection appears active, radical surgery should, no doubt, be postponed until the infection has had time to subside The fact that 28 per cent of these cases have come from infections incident to the operative reduction of simple fractures should again serve to remind us all that such treatment should be reserved for those fractures which will not yield to closed reduction When open operation becomes necessary, it should be done only under the strictest aseptic technic. Finally, this report shows that 72 per cent of these patients obtained union under treatment as here advocated Twelve per cent have obtained healing of soft tissues and will have a good chance at union by later bone graft procedures On the other hand, the length of morbidity in this group of cases emphasizes the serious condition with which we are dealing

SUMMARY

In the last five years, the authors have treated 25 cases of infected ununited fractures by resecting the osteomyelitic areas, freshening the bone ends, internal fixation when it appeared necessary to maintain approximation, and assuring continued drainage by packing the wound wide open Fluids, transfusions and supportive medications are given, as indicated, before and after operation Results in these cases have encouraged the authors to continue this method of treatment Nine cases are reported in abstract form and 25 cases in a chart

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Campbell W C. and Speed J S Use of Vitallium as Material for Internal Fixation of Fractures Ann Surg *110* 119 130 (July) 1939

RÉSUMÉ

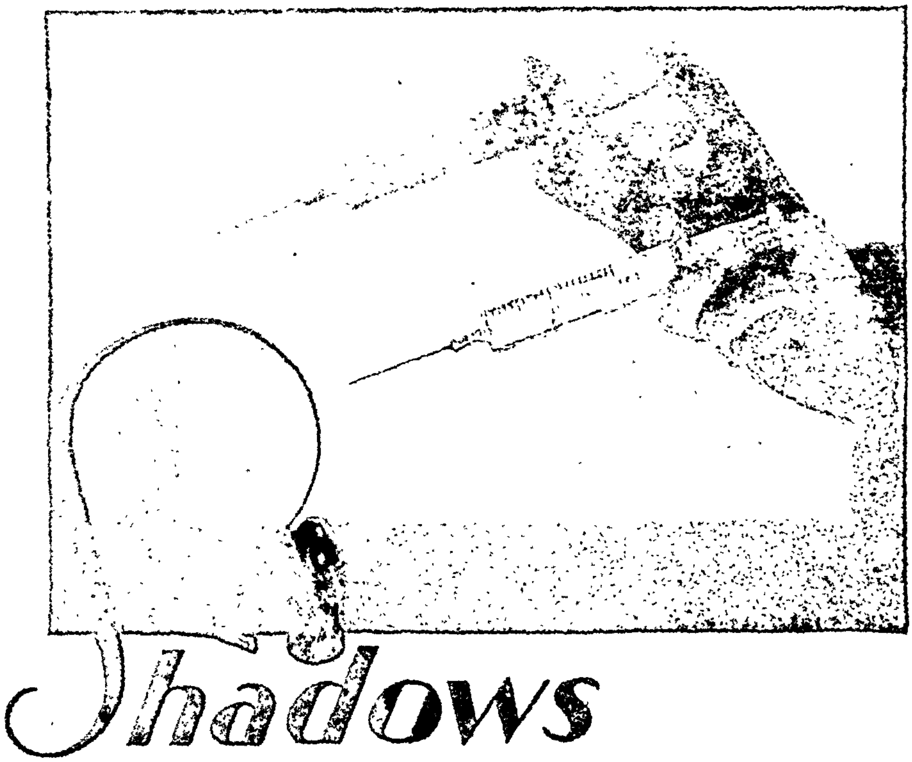
Traitement des anciennes fractures infectées pas unies

Dans les cinq dernières années les auteurs ont traité 25 cas de fractures infectées pas unies, avec resection de la zone ostéomyélitique, liberation des extrémites de l'os, fixation interne lorsqu'il parait necessaire pour maintenir le rapprochement et continue drainage de la blessure largement ouverte Liquides, transfusions et medicaments adaptes sont administrés selon indication avant et après l'operation Les résultats obtenus dans ces cas ont encouragé les auteurs a continuer cette méthode de traitement Neuf cas sont ici reportes

ZUSAMMENFASSUNG

Behandlung alter, nicht vereinter infizierter Bruche

Die Autoren haben in den letzten Jahren, 25 Falle von infizierten, nicht vereinten Bruchen, mittels Resection der osteomyelitischen Teile, behandelt, Anfrischung der Knochenenden, innere Fixation, wenn dies notig war um die Annaherung zu erhalten, und Sicherung einer dauernden Drainage durch Tamponade der weit offen gehaltenen Wunde Flussigkeit, Transfusion und unterstutzende medikamentose Behandlung werden der Indikation gemass vor und nach der Operation gegeben Das Resultat dieser Falle hat die Autoren in der Fortsetzung dieser Behandlungsmethode bestarkt. Neun Falle sind beschrieben



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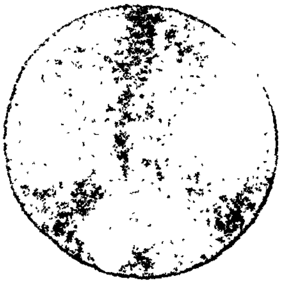

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FEBRUARY, 1940

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PRIZE ESSAY ON ANESTHESIA . 27

ORIGINAL ARTICLES

Granulomatous Inflammation Produced by Foreign Body Irritants
Dr Thomas L. Ramsey and Dr Fred M Douglass. . . 3

Maintenance of Continence in Operations for Carcinoma of the Rectum
Dr Felix Mandl . 11

Appendicular Pylephlebitis
Dr Felix Cunha . 18

Acute Intestinal Obstruction: A Study of the Diagnosis and Treatment with an Analysis of 104 Cases
Dr Milton Bodenheimer, Dr. Daniel Casten and Dr Julian Fried 28

Appendicitis: Its Differentiation and Treatment
Dr. Dewell Gann, Jr . .. 50

The Indications and Choice of Surgical Procedures in Gallbladder Disease: With a Discussion of Controversial Points
Dr Moses Behrend 63

Acute Cholecystitis
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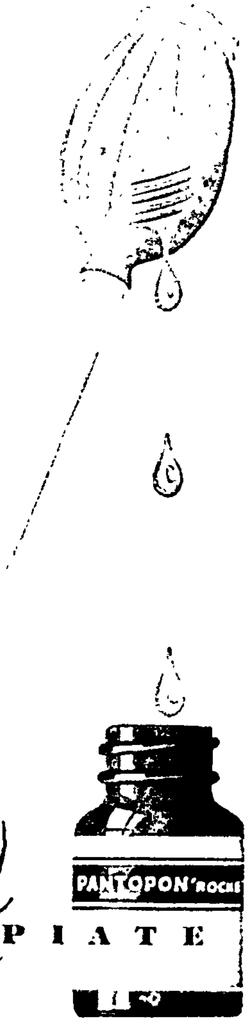

A SMOOTH ACTING OPIATE

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Waist, around body

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Editorials

IS THE LINE OF DEMARCATION BETWEEN MEDICINE AND SURGERY BECOMING EFFACED?

SINCE the beginning of documented medicine there has been a line of demarcation between the functions of the physician and the surgeon. The division was both logical and satisfactory and was well adapted to early conditions. Because of its practical basis, it has persisted nearly to our time. It seems reasonable to suppose that this imaginary line was there from the beginning and that medical men merely widened it Indeed, they widened it to a zone behind which both sides became quite firmly entrenched

The reason why this line was so easy to trace in the beginning was that certain physical ailments quite obviously needed different management Wounds received in battle and in encountering savage beasts, and the accidental injuries of daily life demanded immediate urgent attention to stem the flow of blood, to replace as well as possible the original position of broken or dislocated bones or to close an open body cavity. Effective treatment depended upon quick, positive action, and the surgeon adapted himself to this end After he became more learned, more skilful and more bold, he extended his field to include the treatment of other affections, such as the opening of abscesses and the removal of tumors, and with the onward march of time he extended his field to the limits reached by the modern surgeon In doing this he unconsciously, perhaps, widened the zone which separated him from the physician; yet this zone, wide as it became, was not surrounded on either side by impenetrable ideas so that now it has become in places very narrow indeed

The surgeon in times past was not always as learned as the physician, but he was perhaps more resourceful because he was obliged to cope with many emergency conditions, often using the simplest of tools. He usually looked with disdain upon the great array of drugs of the physician and resorted to the use of but a chosen few whose actions seemed both certain and beneficial.

The modern surgeon has enlarged his domain to a great extent by using his methods in fields previously assumed to belong to the physician. In the field of nervous disease he has opened the cranial cavity to work with painstaking care on the brain, in pulmonary tuberculosis h[illegible] has performed phrenectomies, thora[illegible]tomies and lobectomies, while in val[illegible]ular heart disease he has dared to [illegible]rk upon the valves of the heart them[illegible]ves. Such a list could be made tediou[illegible]ong

The extension of the surg[illegible] necessitated the development [illegible] surgical specialists so that [illegible] cation of general surgeon [illegible] pearing. The neophyte in [illegible] to develop quickly a subd[illegible] he is interested in order [illegible] ing his field of study [illegible] may master it more th[illegible]

Besides the tenden[illegible] to treat diseases [illegible] medical, a great ch[illegible]

GRANULOMATOUS INFLAMMATION PRODUCED BY FOREIGN BODY IRRITANTS*

THOMAS L RAMSEY, M D and FRED M DOUGLASS, M D
F A C S, F I C S

From the Departments of Pathology and Surgery St Vincent's Hospital
TOLEDO OHIO

REACTIONS to foreign body substances in the tissues have been observed and studied for some time Early papers to this effect were published by Lambert[1] in 1912, and summaries of papers by Harrison, Lambert, Hanes, Burroughs and others[2] were published in 1913

Lambert's work was concerned mostly with the production of giant cells in lymphocytic cultures in vitro by using lycopodium spores as foreign body elements The giant cells were formed by fusion of several cells about the foreign body

The subject we wish to present concerns principally the granulomatous reactions that are caused by the use of lycopodium powder and powdered talc

DEFINITION . . .

is a dimpled surface They meas
about 30 microns in diameter On a
section they appear as a ring w
rated margins and contain a
granular substance

Chemical analysis of the
about 48 per cent neutral
lycopodic, oleic and sta
minute amounts of cb a
cerin The spores some
stain readily with podium

Talcum or ta excellent
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white, greas during opera
dusting po
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and ta RODUCED
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Case No. 2. The patient, an adult female, aged 33 years, had had some bleeding for a period of about one year and a half. This bleeding occurred mostly before and following the menstrual period and lasted about ten days in all. There had been no pain or distress.

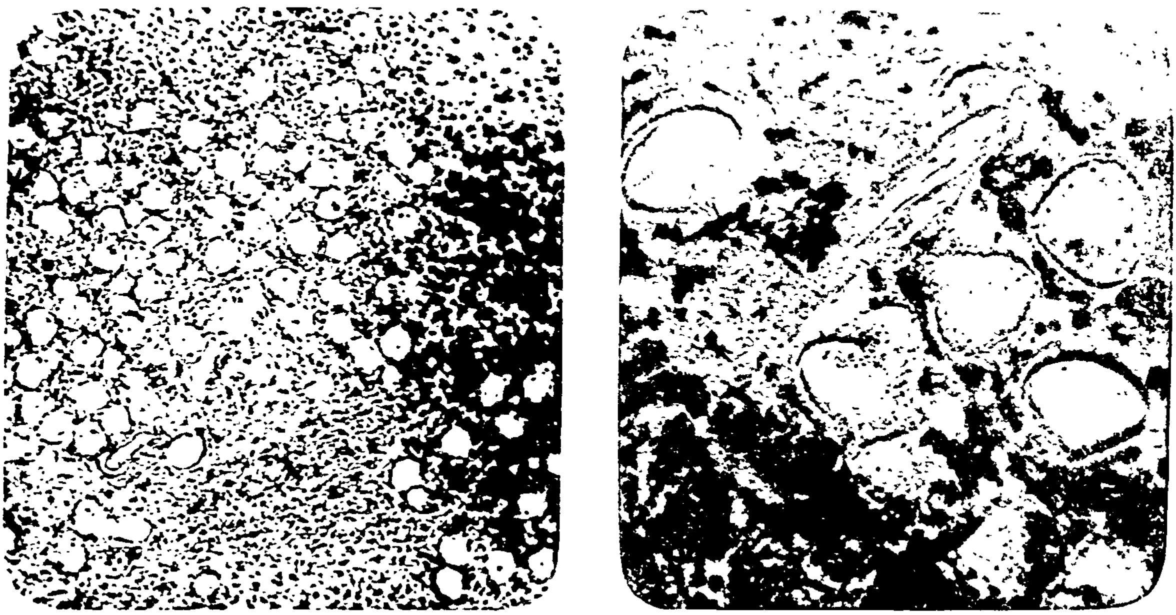


Fig. 3. Left, lycopodium spores in granulation tissue from Case 2, with ulceration of the cervix. Low power magnification.

Fig. 4. Right, lycopodium spores and one crystal of magnesium silicate from Case 2. High power magnification.

The general health had been good and the general physical examination was essentially negative. Vaginal examination revealed an old cervical laceration which was healed, but there was an area of erosion at the margin of the external os which bled rather freely upon manipulation.

Curettage was performed and a portion of the involved cervix was removed for microscopic examination.

The sections from the cervix showed chronic cystic endocervicitis. There was a moderate degree of polypoid hyperplasia of the mucosa. The surface stratified epithelium showed erosion, and in the underlying tissues considerable inflammatory infiltrate was present, consisting mostly of small round cells, large mononuclears, plasma cells and giant cells. Lycopodium spores were found loose in the tissue, also within the giant cells. Fibroblastic proliferation was present throughout the stroma. The uterine scrapings showed beginning premenstrual glandular hyperplasia. There was no evidence of any malignancy. In reviewing the history, there was no knowledge of the use of vaginal suppositories. The probable introduction of the spores was from lycopodium powder used upon rubber gloves during vaginal examination and repair of a cervical laceration following a delivery. After excision of the area there has been no further evidence of bleeding.

Case No. 3. The patient, an adult female, aged 50 years, complained of pain in the back and lower abdomen. She had had two abdominal operations, one 17 years prior to the date of the present trouble, at which time the right tube and ovary had been removed; about a year later a second operation was performed for the relief of pain in the lower abdomen and adhesions. Following the second operation the patient was fairly well with the exception of periodic attacks of pain at the time of the menstrual periods. During the last month the pains were more severe and the patient developed symptoms of intestinal obstruction.

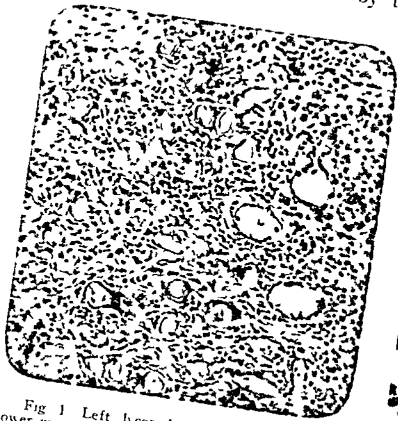
At operation many adhesions were found between the loops of the intestines and between the visceral and the parietal peritoneum; constricting bands were present, causing partial obstruction; one loop of the ileum was adherent to the stump of the left ovary which had been previously removed.

criminate use of talcum powder in the operating room because of the possibility of granulomatous lesions.

Antopole and Robbins[7] in 1937 again discussed lycopodium granuloma, reporting another instance of this condition following the use of rectal suppositories which had been covered with lycopodium powder. These suppositories had been introduced into the rectum following operation for hemorrhoidectomy.

AUTHOR'S CASES

We wish to report two cases of granulomatous inflammation caused by the introduction of lycopodium spores into the tissues and three cases of granulomatous lesions in which crystals of magnesium silicate or talc were found.



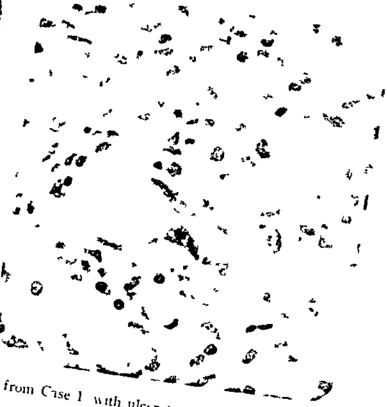


Fig 1 Left lycopodium spores in granulation tissue from Case 1 with ulceration in vaginal vault Low power magnification

Fig 2 Right lycopodium spore in foreign body giant cell from Case 1 High power magnification

CASE NO 1. The patient was an adult female aged 53 years with ulceration in the vaginal vault. Carcinoma was suspected and radium was introduced in May 1933. In July 1933 hysterectomy was performed. The examination of the tissue at that time was reported as not malignant.

Leading up to the period when the ulceration was found, the patient had suffered from a foul smelling discharge. Following the hysterectomy, some bleeding continued sporadically but in small amounts. There was no weight loss and the patient did not complain of feeling ill. The general physical examination was practically negative. On account of the bleeding the patient entered the hospital for a biopsy which was taken from the persistent lesion in the vaginal vault.

Sections made from the tissue removed showed a chronic granulomatous inflammation. The surface stratified epithelium was destroyed. There was some attempt toward healing and scar tissue formation and diffuse inflammatory cell infiltration was present consisting mostly of leucocytes, monocytes and plasma cells; many giant cells were seen, some of which contained partially disintegrated lycopodium spores. Fibroblastic proliferation was diffusely present.

A diagnosis was made of chronic granulomatous inflammation resulting from irritation caused by lycopodium spores. These spores were probably introduced into the tissues during the vaginal hysterectomy or possibly following postoperative treatment. There was no malignancy.

The area was excised. The patient made an uneventful recovery and has had no recurrence of the condition.

since the last operation. Her periods were irregular and there was sometimes a dark chocolate colored discharge.

The general physical examination showed nothing of importance except that the patient appeared poorly nourished. The vaginal examination revealed a cervical erosion and scarring, the uterus was small but freely movable and rectocele and cystocele were present in moderate degree.

An operation was again necessary. Perineorrhaphy, complete hysterectomy and right salpingo-oophorectomy were performed. The right ovary was found to be cystic and there were adhesions between the omentum and the old incision and the pelvic viscera. These adhesions were freed, the raw surfaces peritonealized and the abdominal wound closed.

Examination of the tissues removed showed cystic endocervicitis, atrophic sclerosis of the uterus, atrophic endometritis, fibrosclerosis and cystic degeneration of the ovary.

This patient again entered the hospital on October 2, 1938, which was about 13 months after her last pelvic operation. At this time she was again suffering from definite symptoms of partial intestinal obstruction.

She was again operated upon. The transverse colon was freed from the lower angle of the gall bladder incision and the pylorus was freed from its attachment to the under surface of the liver. There were adhesions in the pelvis in the region of the ligaments and the vaginal stump. The left tube and ovary were removed at this time. A loop of the ileum was freed from the transverse colon with great difficulty. Sections from the tube and ovary were made. Microscopic examination of the ovary showed cortical sclerosis. The serosal surface was covered with multiple granulomas in which were found many foreign body type giant cells forming around numerous crystals that were identified as magnesium silicate. The tube showed chronic congestion and edema.

This patient made an uneventful recovery and was discharged in about two weeks.

The finding of granulomatous inflammation in the tissues removed and of the large numbers of crystals of silicate indicates that this pathology was an important factor in the long postoperative history in this case. It does not, of course, seem to have any connection with the gall bladder disease or with the chronic pathological process present in the pelvic viscera, with the exception of the numerous adhesions that were present.

Case No. 5. Miss M. R., an adult female, aged 43 years, was first admitted to the hospital four years ago for correction of retroversion and for removal of a chronic infected appendix. At this time a Gillian-Barrett round ligament operation was performed and the appendix was removed. The tubes and ovaries and gall bladder region were explored and were negative.

The examination of the appendix showed chronic inflammation with areas of scar tissue indicating previous inflammation; the mucosa showed erosion with undermining infection. The patient left the hospital after 10 days in good condition.

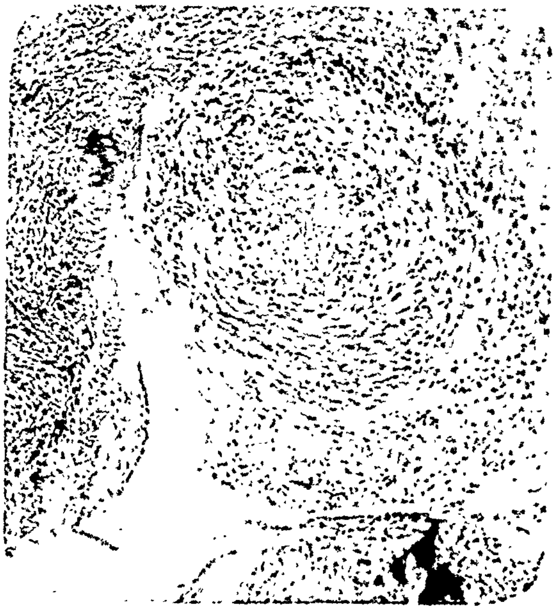


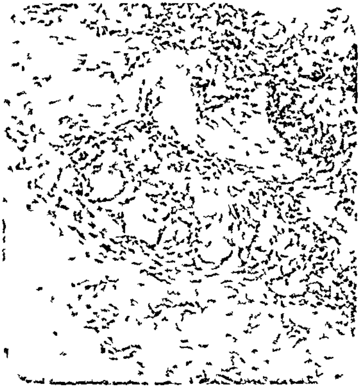
Fig. 7. Showing typical granulomatous nodule with giant cell and magnesium silicate crystals from Case 5. Chronic adhesions were present along terminal ileum, sigmoid and over the surfaces of ovaries and tubes. Low power magnification.

About 16 months later this patient reentered the hospital, complaining of loss of weight, fatigue, and pain in the lower abdominal region and in the region of the gall bladder. A diagnosis of cholecystitis was made at this time and cholecystectomy was performed. Examination of the gall bladder showed some edema, scattered areas of round cell infiltration and chronic catarrhal changes in the mucosa. The patient left the hospital two weeks later with some improvement in her general condition.

One year later this patient was again admitted to the hospital with vague complaints of pain in the lower abdomen, discomfort and considerable nervousness. The general physical examination was practically negative. Her blood pressure was 146/80. She had always had a tendency towards hyperthyroidism. It

The adhesions were freed the rough surfaces were covered by turning in the raw areas and several small portions of inflammatory tissue were removed for microscopic examination

The sections from these tissues showed a chronic productive and granulomatous inflammation with round cell infiltration mononuclears and plasma cells many giant cells were present around crystals of magnesium silicate The crystals were also scattered diffusely throughout the tissues



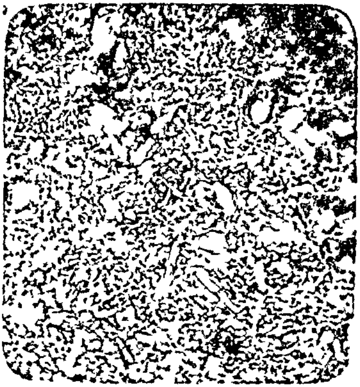


Fig 5 Left characteristic granulomatous inflammatory reaction with giant cells around crystals of magnesium silicate from Case 3 Numerous adhesions between the serosal surfaces of the intestines and partial intestinal obstruction were present Low power magnification

Fig 6 Right numerous magnesium silicate crystals in granulomatous tissue from nodules present on loop of the ileum from Case 4 Low power magnification

These findings indicate that the introduction of this powder during one of the previous operations had produced the granulomatous inflammation and resulting scar tissue formation which appeared to be a causative factor in the production of the adhesions and partial intestinal obstruction

Following this operation the patient has so far suffered no further return of the symptoms

Case No 4 The patient was an adult white female aged 32 years She was first seen in November 1936 when she entered the hospital complaining of pains in the gall bladder region and also in some of the joints and muscles She had had some back ache with nausea and vomiting

The patient had been operated on 10 years previously at which time some pelvic surgery was performed probably shortening of the ligaments and appendectomy

During the examination in the hospital a gastrointestinal examination was performed and the impression was that the patient was suffering from partial obstruction of the bowel in the region of the sigmoid colon and terminal ileum A diagnosis was also made of chronic cholecystitis

The patient was operated upon a right upper rectus incision being made and the gall bladder was removed Exploration of the lower abdomen disclosed many adhesions in the region of the terminal ileum The omentum was found adherent to the under surface of the old lower abdominal incision These adhesions were freed as much as possible the raw surfaces were peritonealized and the abdominal wound was closed The patient made an uneventful recovery and was discharged improved

Six months later this patient again entered the hospital complaining of severe dysmenorrhea which had become progre [illegible] w call to the attention of the medical profession the fact that serious lesions can be produced by indiscriminate or excessive use of these substances in abdominal or other surgery and by the use of rectal and vaginal suppositories. A brief review of the literature on the subject is also presented.

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RÉSUMÉ

Inflammation granulomateuse due à l'irritation de corps étrangers irritants

Deux cas d'inflammation granulomateuse consécutive aux spores de poudre de lycopode et trois cas dûs aux crystaux de silicate de magnésium sont rapportés. L'emploi immodére ou excessive de ces substances en chirurgie abdominale ou autre et leur emploi comme enrobage de suppositoires vaginaux ou rectaux est à déconseiller. Une revue brève de la litérature du sujet accompagne la communication.

ZUSAMMENFASSUNG

Granulomentzündung hervorgerufen durch Fremdkörperreiz

Der Verfasser veröffentlicht 5 Fälle von granulomatöser Entzündung von denen zwei durch Partikel von Likopodiumpulver und drei durch Magnesium Silikat hervorgerufen wurden. Er betrachtet es für ratsam die Aufmerksamkeit der Aerzte wieder auf die Tatsache zu richten, dass ernstlicher Schaden durch die unrichtige Anwendung dieser Substanzen in abdominaler und anderer Chirurgie, oder durch die Anwendung von rektalen oder vaginalen Suppositorien eingerichtet werden kann. Ein kurzer Literaturüberblick über dieses Gebiet wird ebenfalls geboten.

SUMARIO

Inflamación granulomatosa producida por cuerpos estraños irritantes

Dos casos de inflamación granulomatosa causada por esporos de polvos de licopodium y tres casos de inflamación granulomatosa causada por cristales de silicato de magnesio son presentados aquí. Se llama la atención nuevamente á la profesión médica la verdad de que lesiones serias pueden ser producidas por el uso indescreminado ó en exeso de estas substancias en cirugía abdominal ó otra clase de cirugía y por el uso de supositorios rectales ó vaginales. Una reseña breve de la literatura en la materia es presentada.

RIASSUNTO

Infiammazione granulomatosa prodotta da irritazione dai corpi strani

Sono presentati due casi d'infiammazione granulomatosa prodotta da spori di polvere di licopodio e tre casi d'infiammazione granulomatosa prodotta da cristalli di silicato di magnesio. Si è creduto utile chiamare all'attenzione della professione medica il fatto che lesioni pericolose possono essere prodotte con l'uso indiscreto o eccessivo di queste sostanze nella chirurgia addominale o nella chirurgia di altre parti del corpo, e coll'uso di suppositorii rettali o vaginali. E anche presentato un piccolo riassunto della letteratura su questo soggetto.

was thought that the symptoms were probably due to adhesions formed following the previous operations

An exploratory incision was made and numerous small nodular areas were seen along the terminal ileum and in the region of the sigmoid The left ovary was cystic and about the size of an orange Both tubes and both ovaries and several of the nodular growths from the serosal surface of the ileum and sigmoid were removed

Sections from these nodules showed chronic granulomatous inflammation with numerous giant cells present Most of these were seen developing around and near crystals of a foreign substance The crystals were irregular in shape, somewhat elongated, flattened and with sharp and irregular borders, some were adherent in groups The surrounding stroma was fibroblastic with round cell infiltration

Sections from the ovaries showed areas of granulomatous inflammation on the serosal surfaces Both tubes showed chronic inflammation with congestion of vessels and edema

The pathologic diagnosis was multiple small nodular granulomas from the serosal surfaces of the ileum sigmoid and both ovaries, foreign body reactions around crystals of magnesium silicate cystic degeneration of the ovaries and chronic congestion and edema of the tubes The adhesions were freed and the abdominal wound closed The patient was discharged from the hospital after three weeks

The patient was never fully relieved from symptoms following the last operation She had continued abdominal distress and constipation but pain was not a prominent symptom The general physical examination in general was negative The blood pressure at this time was 170/86

Examination of the abdomen showed no tenderness no masses no rigidity The symptoms were again thought to be due to lower abdominal adhesions

The patient was again operated upon the sigmoid showed chronic inflammatory induration, but very few adhesions were present The findings suggested diverticulitis and on account of the extensive involvement a resection of the sigmoid was performed and a cecostomy made The cecostomy opening was closed after about three weeks

The examination of the sigmoid showed rather extensive involvement of the wall by granulomatous inflammation in which crystals of magnesium silicate were present Diverticulitis of the sigmoid was a complicating factor which probably added to the symptoms and necessitated removal of this portion of the bowel The patient was in the hospital this time five weeks being discharged August 20, 1939 The cecostomy was closed eight days prior to discharge

COMMENT

In view of the fact that many cases of granulomatous inflammation have been caused by contamination of tissues by spores of lycopodium powder and crystals of magnesium silicate or talc, it seems that more attention should be paid to the use of these substances in the practice of medicine and surgery It has been surprising in discussing this subject with many physicians that they did not seem to be aware of any danger following their usage

The rather extensive use of talcum powder on rubber gloves, tubing and rubber drains is not to be passed over too lightly It would seem a good procedure to be sure that these articles, if used dry, are free from excessive powder It seems also that the inside of rubber gloves should not contain free powder in the finger tips, as a tear in the glove during operative procedure might liberate enough of the powder to cause serious lesions to develop

The dusting of powder on raw surfaces should be eliminated as much as possible, and if used at all, the tissues should be observed for the development of any granulomatous lesion following its use

Rectal and vaginal suppositories that have been kept in powdered talc or lycopodium should be freed from this powder before insertion Following the use of these suppositories it might be well to keep in mind the possibility of nonhealing granulomatous lesions developing from the spores or crystals

SUMMARY

Two cases of granulomatous inflammation caused by spores of lycopodium powder and three cases of granulomatous inflammation caused by crystals of magnesium silicate are herewith presented It is thought adv [illegible] and the connective tissue around the colon are usually healthy.

The conclusions to be drawn by the surgeon from these observations are clear: *Wherever possible, in situations in which the tumor is at a sufficient distance from the sphincters, these should be saved.*

LEVEL OF MALIGNANT PROCESS

The question as to the level at which carcinoma of the rectum is situated is, therefore, of importance in this connection. In 1922 I examined 655 tumors at the Hochenegg Clinic in Vienna for the purpose of ascertaining the location of these malignancies.[3] The positions of these were as follows: 192 (29.3 per cent) were situated in the pars analis recti at a distance of about 4 cm., 292 (44.8 per cent) at a distance of about 5 to 10 cm., 99 (15.5 per cent) 11 to 14 cm. high, allowing the bare possibility of reaching it with the finger, and 72 (10.8 per cent) were located over 14 cm. above the sphincter.

Based on this statistical study, we can therefore conclude that theoretically, at least, in more than 70 per cent of cases operated upon for carcinoma of the rectum, there exists a possibility of saving the sphincters. This, however, was done in fewer cases. In retrospect, I fail to find why attempts to save the sphincters by resection were not more often made. In 1922 I observed that among 461 operations for carcinoma of the rectum, in 227 the sphincters were saved. The mortality was 14.4 per cent.

Perhaps because in Küttner's Clinic the same results were obtained in regard to mortality of resections as compared with amputations, it is probable that the cases offering less technical difficulties were resected and that in cases in which the carcinoma had already infiltrated and hence were adherent to the surrounding tissues, amputations were done. At any rate, it may be stated that resection does not augment the operative mortality.

RESULTS

Finally, one more question arises: Does the saving of the sphincters influence the lasting results adversely?

The lasting results following operations for carcinoma of the rectum from the Hochenegg Clinic, of which I reported over 1,000 cases in 1929, discloses that following amputations and extirpations of the rectum, lasting results after three years reached a level of from 25 to 31 per cent, while after resections the percentage ranged from 33 to 37.

Similar results were obtained about the same time by Eichhoff (Küttner Clinic) and Pribram (Payr Clinic). A total of 1,350 operations performed at the three mentioned clinics offered proof that saving of the sphincters does not, in general, lessen the lasting result, provided, however, that the position of the carcinoma is sufficiently high.

It should also be mentioned here that circular suture of the intestine yields only 20 per cent of primary continence. This result can be brought up to 50 per cent by proper technic. Much better results in regard to continence can be obtained by the "pulling through" method of Hochenegg, which resulted in continence in 60 per cent of the operated patients who left the hospital. According to my recent experiences, by additional minor secondary procedures, the percentage may be augmented to 65 per cent and even more.

I believe that by stating the foregoing facts I have shown that there is no reason to fear attempts to retain continence because of operative mortality or lasting results. I wish now to discuss the technical problems with which the surgeon is confronted.

TECHNICAL PROBLEMS

I shall point out the steps for retention of continence as I practice them. They are as follows:

MAINTENANCE OF CONTINENCE IN OPERATIONS FOR CARCINOMA OF THE RECTUM

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PATIENTS who survive an operation for carcinoma of the rectum without recurrence but who are nevertheless unable to enjoy life because of incontinence for the remainder of their lives caused me to analyze the results of the manifold procedures in vogue and to endeavor to evolve some method for avoiding this distressing situation.

Of course, radical operation is to be considered as the main objective in all cases of malignancy of the rectum. My impression is that frequently continence is being sacrificed in cases in which it could have been spared.

First, we must consider the extent of involvement of the rectum by the malignant process; second, it is well to compare the mortality with the lasting results of the operation of amputation of the rectum in which the sphincter recti was saved, and finally, one must be acquainted with the methods for safeguarding continence as a primary or secondary procedure.

With reference to the question of choice between the dorsal approach or the combined operation, I have pointed out repeatedly and advocated the dorsal method which yields better results both as to the radicality of the operation as well as to its lower mortality.

EXTENSION OF CARCINOMA OF RECTUM

Winkler was able to show several years ago that a rectal carcinoma situated under the mucous membrane extends much higher than would appear macroscopically. Such extension of the tumor may reach a height of even 8 cm. above the tumor. It may also penetrate all layers of the intestinal wall, or the tumor may surround the circumference of the intestine and extend into the perirectal tissues. Winkler therefore concluded that under such conditions resection of the intestine should extend on both ends as far as possible into healthy tissue. The conclusion to operate radically in the horizontal direction as well was already made in 1929. At that time I published a statistical study of 1,000 radical operations for carcinoma of the rectum,[1] in which I stressed the necessity of radical extirpation and proper technical procedures. In the same communication a study of the tissues was made and the final results recorded of patients operated on 14 years ago. It was revealed that among the lasting results, not only the length of the removed intestinal segment was of deciding importance, but that such happy results could also possibly be attributed to the removal of sufficient tissue at the horizontal level of the neoplasm. I made a plea at that time for extension of the radical operation to include the horizontal diameter of the tissues involved.[2] Of further importance appear to me in this respect the painstaking pathologico-anatomic studies published by Westhues in 1930. He concludes as follows:

1. Cancerous connective tissue and lymph node metastases are situated at the level of the carcinoma or above it, practically exclusively, in the neighborhood of the superior hemorrhoidal artery.

2. Below the carcinoma the intestines and particularly the lymph gland tissue

tension, or the proximal part of the intestine is too short, the sphincteric portion of the bowel should be left behind, an anus sacralis being created in such instances at the end of the extirpated coccyx or sacrum (Fig. 1).

(C) *Secondary "Pulling Through Method."* Experience teaches that at times prolapse of the rectum may develop at the site of the sacral anus (Fig. 2). Paradoxically, often such a prolapsus has been removed by operation, instead of utilizing it to get continence. Weil (1918) was the first to describe a method to turn over such a prolapse akin to a gloved finger and to pull it through the remaining sphincteric part of the rectum. This method may be called the "secondary pulling through method."

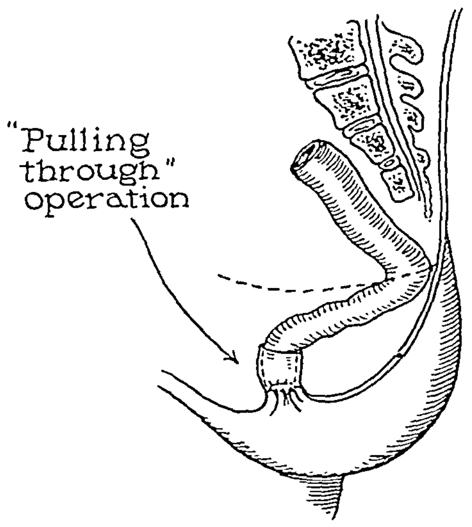

Fig. 3

Fig. 3. A "secondary pulling through" operation was done, as described in the text. The everted end of the prolapse is pulled through the sphincter muscles and retained in place by sutures.

The prolapsed bowel is turned over as in an ordinary rectal prolapse operation of the Rehn-Delorme type. Naturally, not only the mucous membrane, but all intestinal layers must be everted. The everted intestine is now wrapped in a moist piece of gauze and the second phase of the operation, consisting of tunnelling of the peripheral segment of the intestine, is performed as follows:

If the first phase of the operation was performed a long time ago, the peripheral part of the intestine is much stenosed or it may even be totally obliterated. Under such circumstances a large circular piece from the upper end of the peripheral intestinal segment has to be excised. In so doing, do not spare the tissue but be liberal in the dissection, in order to avoid a secondary stenosis after the "pulling through," the opening must be adequate.

The third step of the operation consists of denudation of the sphincteric part of the anus from mucous membrane, in order to create raw surfaces which will unite. Exact hemostasis is essential. After the tunnelling is completed, the "pulling through" step is performed (see fig. 3).

(D) *Formation of Rectal Prolapse.* In 1925 I pointed out that while performing the radical operation and afterwards, prolapse formation of the sacral anus can be produced artificially.[4] Certain existing factors lend themselves appreciably to the formation of such rectal prolapse. These are: insufficiency of the soft and bony structures of the pelvic floor; low position of the pouch of Douglas; insufficiency of the suspensory apparatus of the rectum; and finally, deliberately augmented action of the abdominal wall.

The first three conditions enumerated may be present at the primary operation for the rectal carcinoma, or they may be deliberately created. The coccyx or a portion of the sacrum is removed and the tissues composing the soft floor of the pelvis of the perineum are thus designedly weakened in its fulcrums by the operation. The soft tissues of the suspensory apparatus of the rectum are also injured by the mobilization of the intestine. Finally, after the pouch of Douglas is opened and after the intestine is properly mobilized, the suturing of the peritoneum of the fold of Douglas and the prolapsed, mobilized part of the intestine may be performed as deep as desirable.

Thus the three predisposing factors for the formation of a rectal prolapse are purposely created during the operation. As to the increased abdominal pressure, I advise my patients, if I desire to create an artificial prolapsus, to contract the abdominal muscles for considerable periods several times a day in a manner as if straining at stool, thus compressing the bowels. Also, by means of sondage of the sacral anus with bougies and by the use of a suction apparatus repeatedly, the early formation of a bowel prolapse can be enhanced.

In the case cited by me as an example elsewhere[4] the prolapsed bowel made its appearance one month following the radical operation. Two months after the operation the prolapse measured 10 cm. in length, while three months after the operation it attained 15 cm. in length.

When the prolapse has attained the desired length, it is turned over like the finger of a glove, the proximal portion of the peripheral portion of the intestine which often is stenosed or obliterated by the healing process is opened

(A) *First Steps* Wherever we endeavor to save sphincteric function, we begin with a *colostomy* I prefer a double barrelled transversostomy The intestinal segments are sutured to each other for a length of about 8 to 10 cm , this is done in order to be able later to close the colostomy stoma by means of spur crushing forceps and thus obviate another operative procedure The colostomy limbs are thoroughly exteriorized, "riding' on a rubber tube which is drawn through in the usual manner

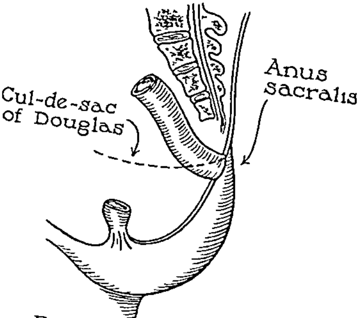

Fig 1

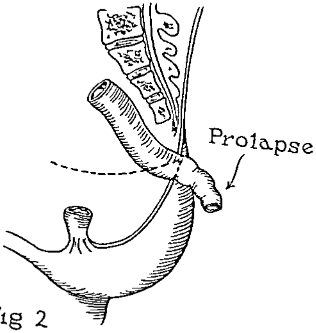

Fig 2

Fig 1 After resection of coccyx and sacrum an anus sacralis was performed The carcinoma was removed and the sphincters retained The pointed horizontal lines indicate the culdesac of Douglas

Fig 2 A spontaneous or induced prolapse at the anus sacralis resulted

One should never omit examining the liver and the high accessible lymph nodes for possible metastases It should also not be forgotten to note carefully how high the tumor is placed in the abdominal cavity and what is of equal importance, whether the descending colon and sigmoid are of the long looped or short variety These are very important points to observe preceding the sacral operation to be performed

On the sixth day the colostomy is opened care being exercised that the accumulated fecal masses in the peripheral part of the rectum are thoroughly emptied by irrigations this is usually easily accomplished where a high degree stenosis exists

After thorough cleansing of the lower intestinal segment repeated disinfections of the peripheral part of the intestine must be resorted to again and again We know of course that complete bacterial disinfection here is illusory Experiments in this respect using thymol etc , yielded negative results However, I prefer the usual antiseptics diluted to such a degree that neither injury nor irritation of the intestinal mucosa or contiguous surfaces will result

(B) *Radical Operation* This may be performed by the sacral route, resorting either to the electric method (Keysser, Thorek) or by the usual scalpel method If the carcinoma is situated above the sphincter (about 4 to 5 cm are sufficient without endangering the radicality of the operation), the sphincter must be respected and not injured during the procedure Open the pouch of Douglas Free by dissection as much healthy intestine as possible In the majority of cases 30 to 50 cm of intestine may be mobilized After having ascertained macroscopically and without pinning too much faith on the uncertain anatomy of the "critical point ' that the intestine is "viable' (color, anastomosis), the next step is to join the central and peripheral stumps of the intestine by an end to end method The usually practiced circular suture yields on the whole, bad results It is much more practical and successful to pull the proximal part of the intestine through the sphincter after having dissected off the mucous membrane from the sphincteric part of the gut (Hochenegg) It is of utmost importance that the intestinal segment pulled through must be free from any kind of tension By using force one will never be able to execute a successful "pulling through' operation If one proceeds as outlined, the retention of sphincteric continen[illegible] m main assured If, however, the through method" care has to be taken that the pulled through part of the intestine retains good nutrition. This applies particularly to the "primary drawing through method." Avoidance of tension in the area of the drawn through intestine is a *condition sine qua non.* Here, as well as in the secondary end-to-end suture procedures, in which, as is known, at first only anterior superficial sutures are placed, a secondary operation being performed later, one has to expect the development of fistulas, which often try the patience of the surgeon and patient alike. Frequent changes of dressings, which must be carried out with meticulous care, are essential. Troublesome fistulization can easily be overcome by proper treatment. The fact that the mucous membrane of the rectum possesses a great tendency towards regeneration and grows together again and again, even in unexpected situations, is of great aid in this connection. The tendency of the mucous membrane of the rectum might be compared with that of the urethra after prostatectomy and with the regenerative powers displayed by the mucous membrane of the bile passages following intricate operations.

Where a tendency for stenosis is manifest, meticulous examination and observation are necessary. To overcome such tendencies it is best not to resort to dangerous bougies or lamination but not to close the temporary stoma in the colon before normal conditions exist in the sphincter area.

In recent years I have resorted to packing the raw surfaces with oiled gauze which resulted in undisturbed healing. At first I used Mennen oil, but I found the results were much better when I used any substance containing cod liver oil. While the various uses of cod liver oil [illegible] I am convinced of [illegible] in these circumstances [illegible] cod liver oil gauze strips in [illegible] as well as for drainage of the sacral cavity. It serves excellently for drainage and in supporting the intestine and even the sphincter itself. Such strips protect the intestine against dryness, and if loosely inserted, act as an efficient antiseptic, because of the noteworthy vitamin A and D content.

Simple gauze strips or a wick may be used. I pour cod liver oil into these large wound cavities and quite often rapid healing results, even of large cavities caused by dehiscence of sutures in this region.

CONCLUSION

In conclusion, I should like to point out: The development of operative procedures for carcinoma of the rectum dates back to 1739 when Faget on June 7th of that year operated first for rectal cancer. The first operation with opening of the peritoneal cavity was done on February 13, 1826, by Lisfranc, whose method was later improved by Velpeau, Dennonvilliers and Verneuil. A great step forward was accomplished by Kraske in resecting the sacrum; this was modified by Hochenegg. Preliminary colostomy was introduced by Berard, Choalier and Schede. Combined operations were advocated in 1877 by Volkmann. The first successful combined operation was done by Jeannel in 1891. He saved at that time the sphincter. Further contributions to the further development of this type of surgery were made by Quenu, Gaudier, Chalot, Hartmann, Mamsell, Trendelenburg, Kraske, Mayo. In recent times the advances in technic were developed by Miles, Bartlett, Schmieden, Kirschner, Lockhart-Mummery, Rankin, Jones and others.

Electrosurgical technics were elaborated on by myself, Keysser and Thorek. Nevertheless, despite all these noteworthy advances, a certain impasse has now been reached akin to the results obtained following operation for carcinoma of the stomach or breast. What by a circular, rather wide excision of the scar tissue and the prolapsed intestine is pulled through the sphincter in the same manner as described above This is followed by physical therapy in the form of sphincter muscle exercises and eventually electric treatments in order to hasten the resumption of sphincteric control

It should be noted parenthetically that the formation of a prolapse from the sacral anus should be encouraged even when it was impossible to preserve the sphincter muscle because such an everted prolapse can later be used in certain instances for the creation of an anus glutealis which permits continence while the patient is standing and contracting the gluteal musculature

many cases excessive stretching of the intestine may be avoided and thus excessive pull on the intestine endangering the nourishment of the bowel frustrated (Figs 4 and 5)

The "elevation of the perineum" can be resorted to in the primary "pulling through" method as well as in the secondary drawing method which has been described

The "elevation of the perineum" is accomplished by means of sutures, which engage to the right and left of the sphincter perineal tissue layers and connect them with the soft structures which are situated on both sides of the resected portion of the sacrum Also, an attempt may be made to unite the soft tissues to the periosteum of the remaining sacral stump

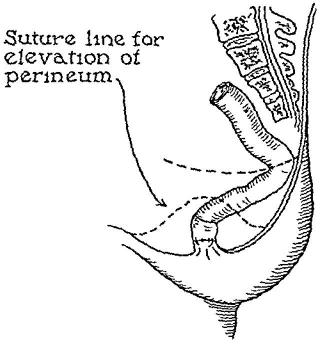

Fig 4

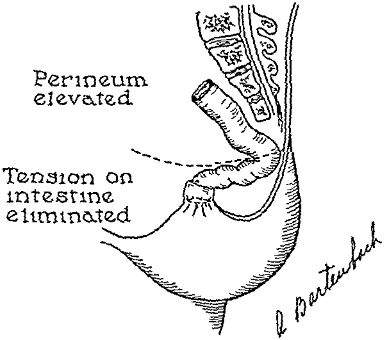

Fig 5

Fig 4 Since marked retraction of the everted prolapse resulted because of great tension the perineum was elevated The arrow points to the direction of the suture line "Elevation of the Perineum"

Fig 5 By reason of the elevation of perineum the tension on the intestine is eliminated the bowel again appears folded and thus able to heal to the sphincteric segment without risking the danger of gangrene

(E) *Elevation of Perineum* Finally, in 1935 I suggested a procedure by means of which the primary and secondary pulling through procedures were much facilitated This procedure I designated as *elevation of the perineum*"[5] The principles involved here are simple The idea is based on the fact that if the mobilization of the intestine toward the sphincter is not successful it may be possible to move the soft structures of the pelvic floor upward toward the proximal portion of the intestine By so doing a distance of about 5 cm may be gained After resection of the coccyx or sacrum and after incising the sacroiliac ligaments and opening the culdesac of Douglas and mobilization of the rectum and finally, after dorsal division of all soft tissues the pelvic floor becomes a movable soft segment, which can be displaced up or down as desired In by means of these suspension sutures The procedure consists of suturing of a longitudinal wound transversely as is practiced in pyloroplasty The elevation of the perineum should be kept up from one to two weeks until the danger from tension of the mobilized intestine has passed

GENERAL REMARKS

All operations for carcinoma of the rectum which aim at complete removal of the affected segment of bowel with sacrifice of the sphincters are technically rather simple in experienced hands, it is conceded, and the after treatment is much simpler than in the methods under discussion Again in the pulling

APPENDICULAR PYLEPHLEBITIS

FELIX CUNHA, M.D., F.I.C.S.
SAN FRANCISCO

THE *problem of pylephlebitis as a* complication of appendicitis is fortunately encountered infrequently in recent times. Increased accuracy in diagnosis, particularly of early diagnosis, therefore early operation, has been mainly responsible for this infrequency. Early operation before infection has had a chance to invade the tissues immediately adjacent to the appendix itself is more or less the rule in present day practice. The marked improvement in operative technique has also been a factor in reducing the incidence of pylephlebitis as a postoperative complication. Yet, in spite of these favorable factors, cases are still met with wherein, because of geographical distance and other environmental factors, too lengthy an interval has elapsed from the time of onset of initial pain to operation. Often a patient with lowered intelligence, coupled with a low pain threshold, waits to see if the pain will not subside without calling medical aid, and valuable time is thereby lost. Then again there is error on the part of the physician himself, who compromises with his judgment and allows too long an interval of expectant therapy; operation is hopelessly postponed and the patient is thereby unjustly exposed to great danger.

FIRST DESCRIPTIONS OF PYLEPHLEBITIS

It is indeed instructive to read Fitz's original description of inflammation of the vermiform appendix published in October, 1886. In this article he relates the tremendous controversy which existed at that time as to whether the infection present was not one involving the cecum alone, the appendix being entirely free of inflammation, or vice versa.

Fitz was a pathologist and supposedly not a clinician, yet he was often enticed onto the surgical wards and his opinion and advice sought, particularly in cases in which the pathology was located in the right lower quadrant of the abdomen. In that early day, he made the *diagnosis of pylephlebitis complicating* appendicitis many times and proved his diagnosis correct at autopsy, which was an all too frequent occurrence in those days. His description was as follows:

> "The occurrence of disease of parts remote from the region of appendicular inflammation must be alluded to, such as abscesses of the liver from pylephlebitis or portal embolism in consequence of a mesenteric thrombo-phlebitis near the appendix. The affection of the liver and portal vein may be the result of a direct continuance of the phlebitis or may follow putrid embolism from a thrombus in the immediate vicinity of the appendix."

It is of passing interest that in this first description of appendicitis, Fitz[1] issued a warning against the use of laxatives:

> "A cathartic or a laxative may be demanded by the patient or his friends and an enema be thought desirable as a diagnostic aid. It is to be remembered that these may be the means of at once exciting a general peritonitis."

Twenty years later, Gerster[2] called attention to pylephlebitis complicating appendicitis and made the following statements:

> "It seems clear that, as regards purulent pylephlebitis caused by appendicitis, an early diagnosis of the primary trouble and prompt operation offer the only reliable safeguards.

the future holds in store is difficult to divine

Finally, if the surgeon will recall that a person with an incontinent sphincter is often unfitted for work and on occasion is socially ostracized and suffers from a train of psychoneurotic manifestations incident to the existence of this condition, he will bend every effort to retain, if at all possible, sphincteric control It is to that end that this article was written

SUMMARY

The history, evolution and statistical data of operations for carcinoma of the bowel with retention of the sphincters are discussed A number of technical details and the author's original contributions as well as modifications of time honored procedures are described and evaluated The value of cod liver oil dressings is pointed out and a plea for retention of sphincteric function, when possible, is stressed

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RÉSUMÉ

Le maintien du controle apres les operations pour le cancer du rectum

L'auteur discute l'histoire l'évolution et les donnees statistiques des operations pour le cancer du rectum avec retention des sphincters Il avance des details de technique et aussi ses propres contributions a l'avancement du sujet Il decrit et evalue certaines modifications apportees aux procedes classiques Il preconise les pansements a l'huile de foie de morue et recommande la retention des sphincters

ZUSAMMENFASSUNG

Erhaltung der Kontinenz bei Operationen fur Rektumkarzinom

Die Geschichte, Entwicklung und Statistik der Darmkarzinome Operationen, bei denen der Sphinkter erhalten bleibt werden erortert Eine grosse Anzahl sowohl technischer Einzelheiten und des Verfassers Beitrage als auch die Modifikationen der alten Prozeduren werden beschrieben und gegeneinander abgewegt Der Verfasser legt besonderen Nachdruck auf den Wert der Lebertranverbande und betont die Wichtigkeit der Erhaltung der Sphinkter funktion, wenn irgend wie moglich

SUMARIO

Mantenimiento de la continencia en las operaciones por carcinoma del rectum

La historia, evolucion y datos estadisticos de operaciones por carcinoma de los intestinos con retencion del esfinter son discutidos Un numero de detalles tecnicos y la contribucion original del autor tanto como las modificaciones de los tiempos son descritos y evaluados El valor del tratamiento local con el aceite de higado de bacalao es mencionado y la retencion de la funcion del esfinter es aconsejada

RIASSUNTO

Il mantenimento della continenza in operazioni per cancro del retto

La storia l'evoluzione ed i dati statistici sulle operazioni per cancero dell retto, con retenzione delle sfinteri sono discusse Parecchi dettagli tecnici e le contribuzioni originali dell'autore ed anche modificazioni di antichi procedimenti sono descritti e valutati Il valore di medicamenti fatti di olio di fegato di merluzzo è ben notato e l'autore milita in favore della retenzione della funzione sfinterica quando è possibile

particularly if severe peritoneal extension occurred and travelled by way of the lymphatics of the portal system and those of the retrocolic region, then the infection could easily be carried intrahepatically, and abscess formation, probably with multiple abscesses, would result.

It is only when the infection can and does invade the portal system that true pylephlebitis and true intrahepatic abscess can develop.

In this respect it is perhaps as well to reiterate that in every case all three avenues of possible causation are involved to some degree.

As evidence against the teaching that thrombosis of the veins is not a part of this entity, the fact is advanced that pathological studies of the meso-appendix, small vessels, and the tissue in the immediate vicinity invariably reveal no involvement of the vessels at the time of operation. The picture present at the time of operation may have no relationship whatever to that present when pylephlebitis occurs.

INDICATIONS FOR TREATMENT

Most often at operation there is absolutely no evidence, especially gross evidence, that such a process is present. Nowadays it occurs later, as a postoperative complication. Because of this it is possible to institute at the time of operation, in the suspiciously potential case, preventive measures which may be responsible for saving an occasional life. We probably shall never have a method of detecting whether recovery could be attributed to such a procedure or not. In cases in which there is gross cellular change involving a large peri-appendical area, with severe constitutional reaction on the part of the patient, particularly if there have been chills, a prophylactic ligation of the ileocolic vein in an area free from infection has been recommended by many authors. This procedure has been advocated in those cases in which there is much congestion and engorgement; extensive, inflammatory edema; cellular infiltration of the retrocecal structures; or a dirty-looking, greenish and reddened appendix with gangrene or abscess formation, on the assumption that such a case is potentially dangerous and suspiciously predisposed to pylephlebitis.

Inasmuch as the prognosis is definitely bad if pylephlebitis does occur, any step or technical procedure taken in advance in a laudable effort to prevent a catastrophy is justified. Every case of acute appendicitis should be considered a potential case of pylephlebitis, if it is ushered in with chills and if it presents the intraabdominal picture described above. The preventive procedure of ileocolic ligation should then be considered.

The clinical picture presented in these cases is invariably the same and usually takes place in the following manner.

In postoperative pylephlebitis, 48 or 72 hours following appendectomy, or even later, there occurs a chill or chills with a rapid rise in temperature to about 104°. The temperature then takes on the typical septic curve, down in the morning, up in the afternoon, with or without the recurrence of chills. The patient begins to present definite evidence of septic infection in his face and skin and by pulse elevation and respiratory increase, although the abdomen, particularly the right lower quadrant, may be soft and entirely free of spasm or rigidity of the musculature. Nevertheless, the patient has definitely the appearance of serious illness.

If the process is to extend along the portal system and involve the liver, there will appear a gradually increasing jaundice, with some tenderness and soreness over the liver area.

An enlarged palpable liver may or may not be present, depending entirely upon the size and location of the abscess formation in the liver.

> The occurrence of a chill is of the gravest importance and should be considered to constitute a more urgent indication to operate than even the signs of local peritonitis. Where much necrosis is found it would be very desirable to expose and evacuate thrombosed veins.
>
> 'The evacuation of septic thrombi from the jugular vein in mastoid disease has yielded such excellent results that the application of the principle to the portal vein would be natural and logical.

This latter recommended procedure has been tried but discarded by many surgeons for reasons which will be explained later in this paper.

Pylephlebitis is the term used to indicate thrombophlebitis of the portal vein or portal system. It is most commonly associated with acute appendicitis and is frequently the postoperative complication of acute appendicitis. Unfortunately, over a period of years there has arisen a tendency to speak of pylephlebitis and liver abscess synonymously, which is erroneous. It does not necessarily follow that if pylephlebitis is present, a liver abscess will result.

ETIOLOGY

There has been considerable difference of opinion among pathologists as to exactly what tissue changes take place in this entity, but there has been an even greater conflict of opinion as to exactly how they take place.

This difference of opinion may occur because of an overzealous desire to catalog the disease into one card indexed description when it is obvious that such a classification is practically impossible. This is more obvious when it is realized that such a type of infection will not follow any definite rule or path but will be more or less dependent upon chance or accommodation to whatever factors may be present locally which form a path of least resistance.

A few facts are known rather definitely and can be set down as categorically true.

The first of these is that appendicular pylephlebitis may be an accompaniment or a postoperative complication of suppurative appendicitis. Secondly, delay in operation is a predisposing factor to its occurrence. Thirdly, the case in which chills have occurred and in which at operation an angry extensive inflammatory process is found should be viewed with grave suspicion as a potential pylephlebitis. Fourthly, following appendectomy, chills, fever, abdominal tenderness and distension occurring at any time from the second postoperative day on should bring immediately to mind the possibility of this complication.

The conflict of opinion as to the method of production of pylephlebitis centers about whether the process develops by direct extension from the original suppurative area, the appendix, or by way of the lymphatics, or whether it is due to thrombosis or thromobphlebitis of the vessels of the meso-appendix with subsequent loosening of the clot, a single embolus or multiple emboli being sent along the cecal branches of the right colic vein and thence to the portal vein. Another opinion is that pylephlebitis occurs as the result of a gradual extension of the suppurative process through the loose retrocecal areolar tissue upward toward the liver.

It is reasonable to suppose that not one but all of these processes take place to some extent in these cases. The matter of retrocecal infection and cellular extension upward receives perhaps more prominence than it should. Although it is perhaps present in some of these cases this anatomical situation in itself serves to bring the process into closer approximation to the small vessels which are more numerous in the retrocecal area, thereby they are more easily and more quickly invaded. Direct cellular extension of a suppurative process in this region is more prone to result in a subdiaphragmatic or subhepatic abscess.

If such a process became extensive,

ppendix, then a slight additional mount of time taken out to include a rophylactic measure may possibly void a highly undesirable surgical inervention later, when the odds involved re heavily adverse.

The proposal of Braun[3] to ligate the ileocolic vein is not only a rational but a feasible one. He proposed it first as a therapeutic measure after the complication had occurred. In selected cases, the same procedure can be used as a prophy-

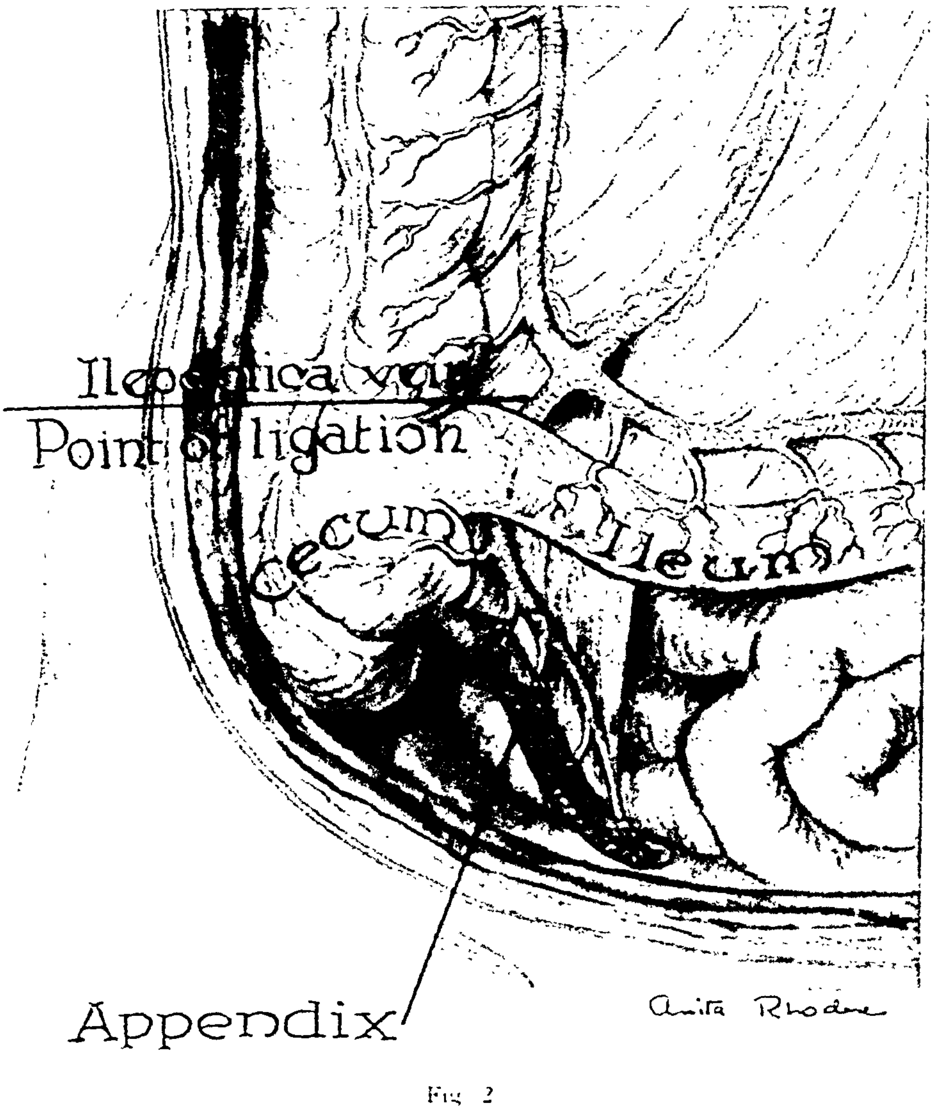

Fig. 2

TREATMENT

Braun,[3] Wilms[4] and many other surgeons long ago advocated the tying off of the venous supply in such cases, but in their cases they did this only after the complication had actually set in, a time when the operative risks are definitely increased.

It is obviously true that in cases wherein a certain amount of mesenteric engorgement and vessel thrombosis was present appendectomy has been performed a countless number of times without any subsequent hindrance to normal quick recovery. It is also recognized that the percentage of cases in which the possibility of pylephlebitis occurs is relatively small, yet these known facts should not mitigate against the use of any measure which holds the possibility of being a preventive in tl rare case which does excite suspicion of being potentially that one in whic pylephlebitis may develop.

In those cases in which much [illegible] grene and necrosis are present and is gross evidence of ext [illegible] botic change in the ve

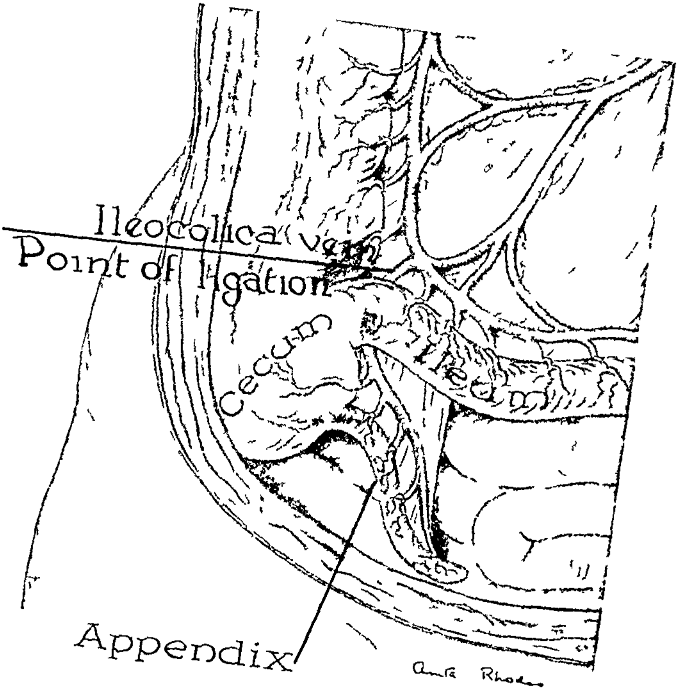

Fig. 1

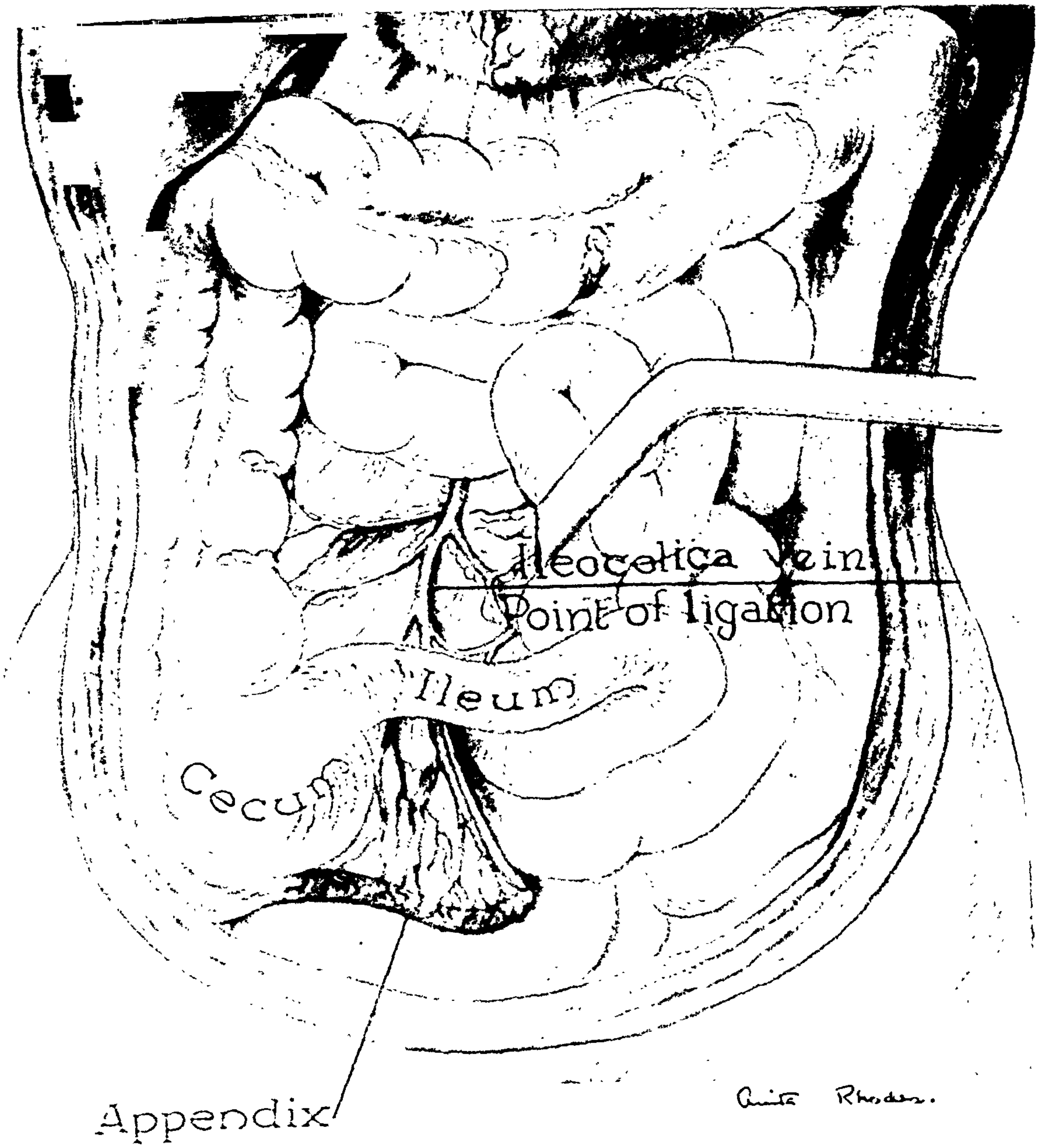

Fig. 4

in the selected case the possible benefit fully justifies whatever the risk may be from such a source.

[illegible]

[illegible] concerning [illegible] be necessary [illegible]

Such a problem is entirely an individual one, subject to the surgeon's observation of conditions present, his experience, his intuition or his susceptibility to hunch, which will frequently govern his action.

4. Temperature and Pulse. Chills during the convalescence from appendectomy, with a rapid rise in temperligation, it is well to bear in mind the possible anomalies of the ileocolic vein and its branches Three main arrangements of the vein are most commonly encountered and can be more easily visualized by the illustrations (Figs 2, 3, 4)

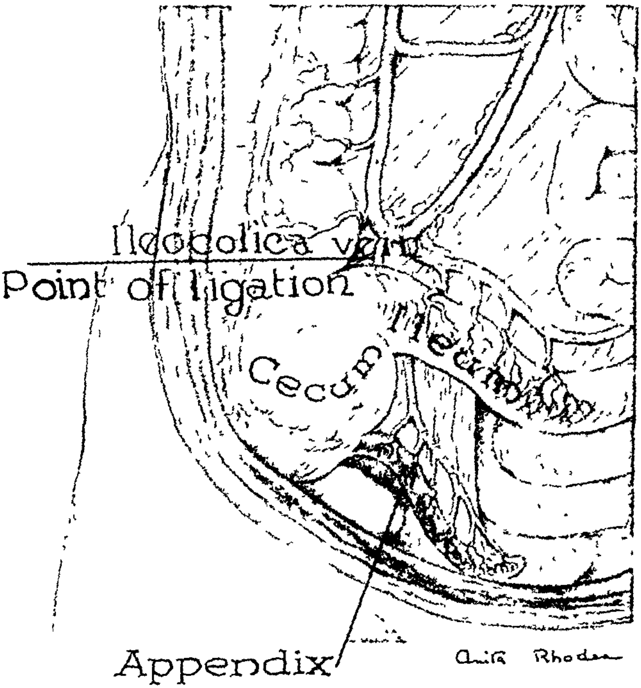

Fig 3

It is obvious that all main divisions of the vein must be ligated in order that the procedure may be effective Ligation of only one main branch when two or three were present would nullify the purpose and intent of the procedure. Preventive ligation is of infinitely more value than any procedure instituted, once the suppurative process gains the ascendancy

The vein or its main divisions should be ligated well above any clot which may already be present within

The criticism has been made that such a procedure entails the exposing of a raw surface in the immediate vicinity of a septic process, but it is believed that

ature and a subsequent picket fence curve accompanied by high afternoon rises most often signify a spreading of the infectious process from the appendix area into the nearby venous circulation There then exists the possibility of subsidence of the process with a few days of chills, fever, sweating and constitutional intoxication, followed by a gradual daily lowering of the temperature and recovery In the cases of greater severity and increasing involvement, the picture is that typical of a gradually intensifying, infectious process with intervening death of the patient An alternative is the formation of liver abscess This may be solitary or multiple, depending entirely upon the mechanical factors involved

B Leucocytosis A persistent high leucocyte count throughout the course of the process is the rule

C Pain This is not a constant or even a common symptom The usual amount of pain and tenderness expected in the right lower quadrant of the abdomen following appendectomy is not appreciably increased

D Distension As the process extends increasing difficulty, with abdominal distension and ileus is frequently encountered

E Perspiration Drenching perspiration such as is encountered in any severe pyemic condition is noted

F Icterus When jaundice does occur, it indicates that the process has passed from the venous structures of the ileocolic vein into the liver and that abscess formation has already occurred or is about to take place

CONCLUSION

Ligation of the portal vein itself has been proposed by a few writers, notably Colp[5] but it has been discarded on the basis that it proved of little value

Surgical intervention after the complication has occurred is of lessened value Tying of the ileocolic vein and of its main branches in the region of the ileocolic angle in those cases wherein it is believed that the conditions present are those conducive to pylephlebitis may serve as a procedure of value Only time and increased trial will prove its efficacy

Temporarily ligation of the ileocolic vein serves to ease the surgical conscience and there is a satisfaction in having used foresight rather than hindsight in that case in which the complication may occur, despite the use of this measure

It is indeed fortunate that these cases occur only rarely due to medical education and medical consciousness on the part of the public earlier and more accurate diagnosis on the part of the physician earlier operation and a more precise technic on the part of the surgeon, but despite all of this in the course of surgical practice there will occur a case in which the procedure described herein is indicated and should be used

SUMMARY

Pylephlebitis, the term used to indicate thrombophlebitis of the portal vein or portal system is most commonly associated with acute appendicitis and is frequently a postoperative complication A chill occurs 48 or 72 hours following appendectomy with rapid rise in temperature to about 104° The temperature then takes on the typical septic curve Ligation of the ileocolic vein is useful if carried out preoperatively It is recommended as a prophylactic in cases in which there is much congestion and engorgement, extensive edema or cellular infiltration of the retrocecal structures or in which the appendix is greenish and reddened, with gangrene or abscess formation

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ACUTE INTESTINAL OBSTRUCTION

A STUDY OF THE DIAGNOSIS AND TREATMENT WITH AN ANALYSIS OF 104 CASES*

MILTON BODENHEIMER,
M.D., F.A.C.S., F.I.C.S.
DANIEL CASTEN, M.D.
and
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NEW YORK

INTRODUCTION

RECENT contributions to the therapy of intestinal obstruction make it timely to consider certain aspects of the problem which face the surgeon in the diagnosis and treatment of this disease entity.

The introduction by Wangensteen of a method for continuous duodenal suction and the development of the Miller-Abbot double lumen tube have altered many of our previous concepts of treatment. The present study is an analysis of 104 cases of acute intestinal obstruction treated at the Hospital for Joint Diseases, New York, from January, 1929, to January, 1938, and an attempt to correlate the pathology and pathological physiology with the symptom complex and the treatment of intestinal obstruction.

INCIDENCE AND CLASSIFICATION

For practical clinical purposes the simplest classification of intestinal obstruction is the most useful. We have divided our cases into two categories: (1) mechanical obstructions, and (2) paralytic or adynamic obstructions. The former group is further subdivided into two classes: (a) simple obstruction in which the lumen of the bowel is obstructed without impairment of the blood supply, and (b) strangulating obstruction in which the blood supply is interfered with but the continuity of the bowel is not altered, as in mesenteric thrombosis. In most of the cases

CHART 1

INCIDENCE OF CASES IN OUR SERIES COMPARED WITH THAT OF McIVER

	Our Series		*McIver's Series*	
	Cases	*Per Cent*	*Cases*	*Per Cent*
Strangulated external hernia	31	29.8	147	44.0
Adhesive obstruction	28	26.9	103	30.0
Neoplasm	15	14.4	32	10.0
Paralytic ileus	12	11.5	..	..
Volvulus	4	3.8	13	4.0
Internal hernia	3	2.9	3	0.9
Gall stone and foreign bodies	3	2.9	7	2.0
Intussusception	2	1.9	17	5.0
Postoperative eventration	2	1.9		..
Mesenteric thrombosis	1	1.0	9	3.0
Lymphogranuloma	1	1.0	.	..
Ileitis	1	1.0	..	..
Congenital anomalies	..	..	2	0.6
Meckel's diverticulum	..	.	2	0.6
Cause unknown	1	1.0	.	..
TOTALS	104	100.	335	100.

---

*[illegible] New York N Y

tura allora assume la curva tipicamente settica. La legatura della vena ileocolica è utile se è compiuta preoperativamente. Si raccomanda come un profilatico nei casi in cui c'è molta congestione e divoramento, edema estensivo, o infiltarzione cellulare delle strutture retrocecale, o in cui l'appendice è verdastra e rossiccia, con gangrena o formazione d'un ascesso.

* * *

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of strangulating obstruction, however, both blood supply and intestinal lumen are blocked. We feel that this simple classification is sufficient, inasmuch as it forms the basis for treatment.

The incidence of the various etiological agents causing obstruction in our series is listed in Chart I These figures closely parallel those reported by many authors[1 2 3] The most frequent agents causing obstruction are constricting bands, strangulated hernia, and neoplasms of the bowel No case of congenital obstruction was found in our series Age and sex incidence are of little significance. In our series there were 54 males and 50 females We noted a predominance of strangulated hernia in the males while cases of obstruction secondary to adhesive bands were more common in the females. This is undoubtedly due to the occurrence of pelvic inflammatory disease in the female. All age groups were found in this series, and, except for the occurrence of obstruction following carcinoma and strangulated hernia in adults, there were no significant findings.

CHART 2

CLASSIFICATION OF STRANGULATED HERNIAE

TYPE	*No*	*Per Cent*	*Male*	*Female*	*Small Bowel*	*Large Bowel*
Inguinal	19	55.9	15	4	15	4
Femoral	9	26.5	4	5	9	0
Umbilical	3	8.8	1	2	3	0
Diaphragmatic	2	5.9	2	0	0	2
Foramen of Winslow	1	2.9	0	1	1	0
TOTALS	34	100.0	22	12	28	6

CHART 3

RELATION OF PREVIOUS OPERATION TO OBSTRUCTION IN ADHESIVE OBSTRUCTIONS AND ILEUS

Operation	**Early Post-operative*	*Late Post-operative*
Appendectomy	8	9
Pelvic operations in females	5	8
Operation for adhesions	1	
Rankin resection of carcinoma of the sigmoid		1
For gall bladder disease		2
For umbilical hernia		1
For previous intestinal obstruction		2
TOTALS	14	23

No Previous Operation—3 cases

* Early postoperative obstructions are considered as those which showed evidence of obstruction within 4 weeks of operation

A rather large percentage of early postoperative obstructions was noted These usually followed appendicectomies It was also observed that a large number of the cases of late adhesive obstructions occurred after operations for pelvic inflammatory disease. No cases of obstruction occurred after operations for suspension of the uterus

PATHOLOGY

The pathological changes in intestinal obstruction can be directly attributed to disturbances in the normal physiology of the bowel occurring in a more or less characteristic pattern as a result of obstruction Except for the strangulating type of obstruction, in which the sequence of events differs, one may assume that these alterations in the normal physiology of the bowel are the direct result of increased intraluminal tension. In fact, it has been shown[4,5] that these changes occur in direct proportion to the increase in this tension

Increased intraenteric pressure affects the peristaltic action, the secretions of and the absorption by the mucosa, the bursting of strength of the bowel an at the site of strangulation immediately suggested the correct diagnosis. Occasionally, in the late cases discoloration of the skin was noted over the mass. In the delayed cases, distension, tympanites,

ness is not an exclusive feature of the strangulating type of obstruction, for several cases with simple adhesive obstruction showed definite localized tenderness. The absence of tenderness, on

CHART 5A

PHYSICAL SIGNS IN ALL CASES EXCEPT STRANGULATED HERNIA

	Small Bowel Obstruction 39 cases				*Large Bowel Obstruction 19 cases*				*Paralytic Ileus 12 cases*				*TOTAL 70 cases*			
	Lived	*Died*	*Total*	*%*	*Lived*	*Died*	*Total*	*%*	*Lived*	*Died*	*Total*	*%*	*Lived*	*Died*	*Total*	*%*
Distension	12	17	29	74.4	4	10	14	73.7	3	9	12	100.0	19	36	55	78.5
Abdominal tenderness	11	10	21	53.9	2	6	8	42.1	2	2	4	33.3	15	18	33	47.1
Elevated temperature, rapid pulse or dehydration	2	6	8	20.5	1	4	5	26.3	2	7	9	75.0	5	17	22	31.7
Abdominal rigidity	3	5	8	20.5	2	1	3	15.8					5	6	11	15.7
Visible or palpable peristalsis	4	1	5	12.8	1	3	4	21.1					5	4	9	12.8
Mass	1	2	3	7.7	1	4	5	26.3					2	6	8	11.4
Rectal mass					1	1	2	10.5					1	1	2	2.8

sulting sequelae, permeability is increased until a frank perforation occurs. Even without frank perforation, however, bacteria will penetrate and the importance of this factor in the prompt relief of distension and the careful handling of damaged bowel at operation cannot be overestimated.

In obstructions of the strangulating type the sequence of events varies considerably from that described above. In these cases the factor determining the pathological changes which occur is the direct occlusion of either the mesenteric arteries or veins, or both, by the strangulating mechanism As demonstrated by Scott[1] and Donaldson,[12] the changes in the bowel wall will vary depending on whether the strangulation is primarily arterial, venous, or both.

If the arterial supply to the bowel is blocked, as in mesenteric thrombosis, the bowel becomes lusterless and dark purple in color Distension is not marked, but some bloody fluid is present in the lumen of the bowel. This will progress to anemic or hemorrhagic necrosis of the bowel wall. If the bowel wall is intact, only small quantities of fluid are found in the peritoneal cavity and this fluid will usually have a hemoglobin content of less than 10 per cent. After necrosis of the bowel has occurred, the peritoneal fluid is foul smelling and bloody.

When the circulatory obstruction is principally venous, the bowel is markedly distended with bloody fluid and the wall of the bowel is infiltrated with red blood cells. As the distension increases, necrosis occurs, and the peritoneal fluid, which is usually very bloody, and has a high hemoglobin content, increases in amount When both the artery and vein are obstructed, as occurs in obstruction due to adhesive bands or volvulus, the picture is usually that of the venous type unless the arterial blood flow has been completely cut off.

The loss of blood into the lumen of the intestine or peritoneal cavity in venous vascular occlusion may be very marked and induce a state of exsanguination. This must be corrected by massive transfusions before proceeding with other treatment. When the arterial wall is blocked, blood loss is a comparatively minor factor.

The degree of increased intraluminal pressure necessary to cause the pathological changes described varies considerably, depending on the location of the obstruction and the length of time during which the increased pressure has acted. The bowel, as other hollow viscera, can accommodate itself to gradually increasing pressure. Clinically, pressures of 4 to 30 cm. of water have been found in obstruction of the small intestine and between 12 and 52 cm. in obstruction of the colon. Whereas a pressure of 10 cm. of water exerted over a period of 12 hours may cause congestion and dilation of the capillaries of the bowel wall, in 48 hours petechial hemorrhage and necrosis may occur. The importance of this factor in early diagnosis and treatment cannot be overestimated.

SYMPTOMATOLOGY

The clinical symptoms of intestinal obstruction are usually thought of as intestinal colic, vomiting, distension and obstipation. A majority of the cases, however, do not present themselves with this complete picture. Obstipation, for example, is present in less than one-half of the cases and abdominal distension is not often noted by the patient. In the typical case, the diagnosis is made with little difficulty, but unfortunately typical cases [illegible] in the minority.

Intestinal colic [illegible] the sine qua non [illegible] mechanical obstru[illegible]tion of intermitten[illegible]inal pain with audi[illegible] or borborygmus.

to be free of gas, the presence of gas in these loops on subsequent x-ray films indicates that the obstruction is relenting or is incomplete.

2. *Determining the nature of the obstruction.* Probably the most important factor influencing therapy is the determination of the exact nature of the obstruction, i.e., whether it is simple or strangulating. The latter type tolerates no delay in the operative relief of the strangulating mechanism because of the impairment of the blood supply. The differentiation is often fraught with difficulty and occasionally is not possible. The mode of onset, the associated symptoms, and most important, the presence of local signs of peritoneal irritation (tenderness and muscle spasm) are valuable aids in diagnosis. We have found, however, that we have occasionally been misled by the absence of tenderness and muscular rigidity and have treated strangulating obstructions expectantly. We have observed that elevation of the temperature and the pulse rate usually accompanies strangulating obstruction, and in the presence of these signs, we think immediate operation is indicated.

3. *Determining the site of obstruction.* The preoperative localization of the level of obstruction does not present as many difficulties from the clinical point of view as the two previous factors. Inasmuch, however, as the use of conservative therapy is definitely contraindicated in colonic obstruction, this localization must be made with great care. Distension of the abdomen is more common and more marked in large bowel obstructions and vomiting is occasionally less severe. In complete, low obstructions, obstipation is a common symptom. Again, the use of repeated x-ray examination is of inestimable value. The localization of intestinal segments can frequently be made on the x-ray films, and in large bowel obstructions very marked distension of the colon may be noted in the absence of distended small intestinal coils. In obstruction of the small bowel, the colon can be emptied of gas by evacuating enemas and this is readily verified by x-ray examination.

In simple obstructions of the small bowel the exact location of the obstructing mechanism can be determined frequently by using the Miller-Abbot double lumen tube. After preliminary decompression, a thin barium mixture is injected through the tube and "spot" films are taken. These enable one not only to localize the obstruction but frequently to determine the exact nature of the etiological agent. This procedure is not without danger, however, and should not be attempted unless complete facilities for immediate laparotomy are available.

TREATMENT

The treatment of intestinal obstruction is determined by two factors: (1) the location of the obstruction, and (2) the etiological factor. For this reason we have divided the discussion of treatment into its component parts. It is obvious that a thorough understanding of the fundamental physiological alterations is essential to the proper institution and evaluation of any method of treatment. The importance of the distension factor is stressed repeatedly, and this, plus the time factor, must dominate any consideration of a plan of treatment.

1. *Mechanical Obstruction of the Small Intestine.* Mechanical obstruction of the small intestine may be either simple or strangulating. In the latter type, immediate operation is essential if the mortality rate is to be kept at a low level. The mortality rate in strangulating obstructions is determined by two factors: (1) the length of time between the onset of strangulation and the operative relief of the strangulating mechanism, and (2) the nature of the surgical attack. It is axiomatic that the surgical

was usually of little aid in establishing the diagnosis.

DIAGNOSIS

The diagnosis of intestinal obstruction is made by a careful study of the history, the physical findings, and the x-ray films. The presence of fluid levels in the intestinal loops on the x-ray film is confirmatory and almost conclusive evidence of obstruction Films should be taken with the patient in the lateral and supine positions. With the help of these studies the surgeon must be able to accomplish three things in order to institute the proper type of therapy: (1) determine the presence of obstruction; (2) determine the nature of the obstruction, i.e., whether simple or strangulating, and (3) determine the site of the obstruction. Without knowledge of these factors treatment can be only haphazard and is doomed to failure

CHART 5B

PHYSICAL SIGNS IN CASES OF STRANGULATED HERNIA

34 Cases of Strangulated Hernia

Physical Signs	*Number*	*Per Cent*	*Lived*	*Died*
Palpable mass	31	91.2	26	5
Tenderness	27	79.5	22	5
Distension	10	29.4	8	2
Discoloration of skin over mass	5	14.7	4	1
Rigidity	5	14.7	2	3
Tympanites	3	8.8	2	1
Rapid pulse	3	8.8	2	1
Fever	2	5.9	1	1
Dehydration	1	2.9	1	0

1. *Determining the Presence of Obstruction.* A history of recurring episodes of cramp-like abdominal pain associated with the synchronous appearance of audible intestinal noises or borborygmus is essential for a diagnosis of mechanical intestinal obstruction. In the absence of intestinal colic, it is extremely doubtful whether mechanical obstruction exists Vomiting and distension, as previously noted, are often absent and may not appear until the later stages. Obstipation is unreliable as a diagnostic aid. Our greatest difficulty in making the diagnosis has occurred in cases of early postoperative obstruction due to adhesive bands. The onset of obstruction in these cases is usually within one to three weeks after operation, and we have found it to occur most frequently after operation for acute appendicitis or appendiceal abscess. With conditions of this nature one is often misled into attributing the distension, pain and vomiting to a local or diffuse peritonitis. Conservative decompression therapy is then usually instituted with disastrous results unless the true condition is soon recognized. In two cases in this series the diagnosis was missed and both patients died as a result of gangrene of the bowel due to a constricting band. The presence of intestinal colic as differentiated from the usual postoperative pain should aid in making the correct diagnosis, but the most important point is the realization that mechanical obstruction by adhesive bands can occur very early in the postoperative state. As with many other conditions, if one thinks of the possibility, one will make the diagnosis.

The importance of repeated roentgen examinations must be stressed as an aid in diagnosis In addition, this often enables one to estimate whether the obstruction is complete or incomplete. If the bowel below the site of obstruction is emptied by enemata and demonstrated

CHART 7

SUMMARY OF NONOPERATIVE CASES

Patient	*Site of obstruction*	*Etiology*	*Treatment*	*Result*
C.S. 68707	Ileum	Adhesive band, early post-operative	Suction	Died (Gangrenous loop of bowel)
A.B. 60494	Ileum	Adhesive band, early post-operative	Suction	Died (Gangrenous loop of bowel)
M.W. 60587	Small Bowel	Adhesive obstruction	Suction	Recovered
J.A. 63709	Small Bowel (Ileum)	Adenomatous polyp causing kink of bowel	Suction	Died 14 hrs. after admission
M.S. 61164	Terminal Ileum	Probably adhesive band	Suction	Recovered
J.C. 63316	Splenic Flexure of Colon	Carcinoma	Suction and rectal irrigations	Died (Metastatic carcinoma)
E.E. 39520	Sigmoid	Carcinoma	Supportive	Died 5 hrs. after admission
J.K. 39068	Rectum	Carcinoma	Supportive	Died (heart failure) day of admission
W.H. 14798	Small Bowel	Adynamic ileus (peritonitis)	Suction Pitressin	Died
M.C. 8636	Small Bowel	Adynamic ileus (peritonitis)	Suction Pitressin	Recovered
A.L. 68748	Small Bowel	Adynamic ileus (postpartum peritonitis)	Suction Pitressin	Died

crease in the severity of the colic; (2) decrease in the distension; (3) the presence of gas in the colon after an evacuating enema as evidenced by repeated x-ray films; (4) withdrawal of smaller amounts of fluid by the duodenal tube; and (5) toleration by the patient of a temporary discontinuance of the suction. In addition the general condition of the patient must be observed closely. In our cases, a rise of pulse rate and temperature usually presaged an unfavorable outcome. The use of any single criterion is dangerous and misleading as many patients will be relieved of pain and will exhibit a decrease in the distension while gangrene of the bowel is advancing. The most careful observation is essential and the necessity for frequent x-ray examination of the abdomen cannot be overstressed. In spite of this, as the following survey illustrates, strangulation may supervene and lead to a fatal outcome.

Continuous duodenal suction by the Wangensteen method was used either as a preliminary method of treatment, or throughout the entire course, in 26 cases, or in 50.9 per cent of all cases of obstruction involving the small intestine, excluding strangulated hernia. Of these, 16 patients had mechanical obstruction and 10 were suffering from adynamic ileus as a sequela of peritonitis. Of the former group, 12 cases or 75 per cent subsequently came to operation because of lack of improvement. Operation in four cases consisted of simple division of an adhesive band which was performed without mortality. In six cases ileostomy was performed with a mortality of 83.3 per cent (five cases). At the time of operation, in three of these cases perforation of the bowel had procedure must be as simple as possible consistent with relieving the strangulation and preserving the viability of the bowel Excessive manipulation of segments of bowel already damaged by impairment of the circulation almost invariably leads to contamination of the peritoneal cavity by the contents of the obstructed loop, with the expected disastrous sequelae The nature of the operative procedure in this type of obstruction will be discussed below

In simple obstruction, relief of the concomitant distension is the principal factor influencing therapy and the elimination of this factor obviates the need for urgency in undertaking surgical relief of the obstructing mechanism As long as the blood supply to the bowel is unimpaired and distension is controlled simple obstruction is compatible with life for a considerable period of time There are, however two factors which frequently interfere with the realization of this ideal condition in actual clinical practice

In the first place the difficulty of definitely differentiating the simple from the strangulating type of obstruction presents a formidable obstacle to the long continued use of conservative measures Secondly there is the ever present possibility that a simple obstruction may change to a strangulating one because of interference with the blood supply, either by an increase in tension of the constricting band, or by pressure on the mesenteric vessels by a kinked and heavy loop of bowel While it is possible that the obstruction may relent if distension is controlled, and this has been emphasized by some authors, in our experience the possibility of strangulation is the more common of the two

The advantages of continuous duodenal suction as a mode of therapy in intestinal obstruction are apparent The elimination of operative intervention in certain cases is a result which must certainly tend to lower the mortality of intestinal obstruction and even in cases requiring subsequent operation, the beneficial effect of suction in decompressing the bowel is no mean aid to the surgeon in accomplishing the required procedure with a minimum of danger In order to utilize the advantages afforded by suction and yet guard against the untoward results of its injudicious use certain criteria must be established First suction should be used only in cases of simple obstruction (and paralytic or adynamic ileus) of the small intestine Secondly, the criteria of successful decompression, as offered by Wangensteen must be applied to each case Th [illegible] side

CHART 6

OPERATIONS FOR RELIEF OF INTESTINAL OBSTRUCTION

Nature of operation	Lived	Cases Died	Total	Mortality (Per cent)
Division of adhesive band	10	2	12	16.6
Division of strangulating ring	27	2	29	6.9
Resection of gangrenous loop of bowel	1	4	5	80.0
Exteriorization of gangrenous loop plus enterostomy	1	1	2	50.0
Closure of perforation and side to side anastamosis	1	3	4	75.0
Enterostomy	3	15	18	83.3
Cecostomy	5	6	11	55.5
Sigmoid Colostomy	3	1	4	25.0
Reduction of eventrated loop of bowel	1	1	2	50.0
Reduction of volvulus	1	1	2	50.0
Reduction of intussusception	1	1	2	50.0
Drainage of peritonitis	1	1	2	50.0
TOTAL	55	38	93	(Av.) 40.8

In a series of 15 cases treated subsequent to January 1, 1938, suction through a Miller-Abbott tube was attempted. We were able to intubate the patient successfully in only seven cases. In the remaining eight cases we were either unable to wait until the tube passed the pylorous because of the urgency of the symptoms, or were unable to get the tube to pass. Of our seven successful cases only one, a case of volvulus of the small bowel, came to operation. We have found the Miller-Abbott tube to be most valuable in the treatment of paralytic ileus or early postoperative adhesions, particularly when the obstruction is incomplete. In our hands it has been of little or no value in complete mechanical obstructions. We feel that with continued experience in the use of the Miller-Abbott tube we should be able to improve these results, but it is essential that greater caution be used in the proper selection of cases[13].

2. *Paralytic Ileus* (*Adynamic or Inhibition Ileus*). The treatment of adynamic ileus is far from satisfactory as the mortality records in most hospitals will show. In the 12 cases of paralytic ileus which we have presented, only 3 patients survived. We feel that the principal factor contributing to this excessive mortality was the free use of enterostomy as a therapeutic measure. Many of these cases were treated before the publication of Wangensteen's work on continuous suction and would undoubtedly be treated differently today. Modified duodenal suction was instituted in 10 cases of paralytic ileus, of which 9 were due to peritonitis. In one case improvement was obtained and the patient survived, while two other patients died as a result of the associated peritonitis. In the remaining seven cases, enterostomy was performed after a period of from two to seven days with a mortality of 85 per cent (6 cases). These figures represent more of an indictment against surgery than against conservative treatment. We feel today that suction offers a better opportunity for survival than enterostomy in adynamic ileus, and believe that in our cases operation was undertaken mistakenly in the hope that apparently hopelessly ill patients might have a better chance to survive. Colp[14], Van Buren and Smith[15], Wangensteen[16], Morton[17], and others confirm the impression that enterostomy is of little or no value in adynamic ileus. Our recent experience in cases not included in the present series also confirms this impression and we feel that continuous suction is the treatment of choice. In spite of some enthusiastic reports on the use of prostigmine and physostigmine[18] we have not been able to obtain consistently good results with these drugs. The seriousness of the exciting cause has mitigated against the favorable outcome in most of the cases in this group, but the relief of distension by means of continuous suction should certainly be a valuable adjunct in treating the peritonitis which is so frequently encountered as a causative agent in adynamic ileus.

3. *Obstructions of the large bowel.* Mechanical obstruction of the colon resembles, in many respects, a strangulating or a closed loop obstruction. The competency of the ileocecal valve in a majority of these cases causes the bowel to become tremendously distended and perforations of the bowel wall occur because of interference with the blood supply. As might be expected, suction is of no aid in the treatment of colonic obstruction. Theoretically it might be possible to introduce the Miller-Abbott tube through the ileocecal valve, but the necessary delay might well be disastrous. The procedure of choice is undoubtedly cecostomy. This serves the dual purpose of providing immediate decompression in the acute stage and of acting as a colostomy during subsequent operative procedures which may be necessary in

already occurred indicating that conservative treatment either had been ill advised, or had been persisted in too long. Of the remaining two cases, a side-to-side anastomosis was performed in one case with a successful outcome and a reduction of an eventrated, kinked loop of bowel was undertaken in the other with ensuing mortality. Four cases of mechanical obstruction were treated by suction throughout their course. In two, the obstruction relented and the patients were discharged as cured. In the other two cases a fatal termination occurred, and postmortem examination revealed gangrene of the bowel caused by an adhesive band. In neither case did the clinical course indicate impending or actual gangrene and, as a matter of fact, both patients showed clinical improvement until the day before death. These cases illustrate again the necessity for proper selection of cases for conservative treatment, the difficulty of differentiating simple from strangulating obstructions, and the need for most careful observation to determine at what point the efficacy of suction has begun to diminish.

It is apparent from the foregoing survey that time is one of the dominating elements in the successful treatment of intestinal obstruction. Despite the most careful observation, the sequence of events in a simple obstruction may lead to a fatal conclusion, without exhibiting warning symptoms and signs. Yet, because of the definite advantages inherent in the use of continuous suction, one cannot deny the patient the benefits of its use. By careful control of the time factor, one may, however, correlate these diverging indications and formulate a routine of therapy. In dealing with a simple obstruction, suction may be instituted at the onset. If improvement is not obvious, as manifested by all the criteria previously listed, in 36 hours operation should be undertaken. In our series only one patient in whom operation was undertaken after preliminary treatment with continuous suction for more than two days survived. This indicated that the change from simple to strangulating obstruction may occur quickly and that delay beyond a certain point is fatal.

With the introduction of the Miller-Abbott tube for continuous intestinal suction, certain aspects of the problem of therapy changed. One of the disadvantages of the Wangensteen method of continuous suction is that the force of suction is exerted at a distance from the site of obstruction and this force may be interfered with by changing relationships of the gas and fluid content of the bowel and by kinks or angulations in the bowel. With the application of suction at the point of obstruction by the use of the Miller-Abbott tube, this disadvantage is overcome and what is essentially a nonsurgical enterostomy is effected. This, in itself, is a definite advantage, the mortality rate following surgical enterostomy being as high as it is in most hands. However, the time element again assumes a dominant position in connection with the use of this modified form of suction. In our experience the delay in passing the Miller-Abbott tube to the point of obstruction outweighs the advantages of direct application of suction. We have also noted that adequate relief of the distension cannot be accomplished until the tube is well past the second portion of the duodenum, a procedure which often requires 24 hours. One other advantage claimed for the Miller-Abbott tube, namely, that it enables one to use the intestinal canal above the site of the obstruction for nutritive purposes, we largely discount. We have been able in our cases to supply the principal nutritive elements and keep our patients in salt and water balance by intravenous therapy and we should greatly hesitate to introduce food into an obstructed bowel.

from the peritoneal cavity. This may be done by one of three methods: (1) primary resection of the involved loop; (2) exteriorization of the loop; (3) attempts to close or invert a necrotic perforation in the bowel. We mention the last only to condemn it thoroughly. Primary resection carries with it a tremendous risk and this is especially true in the poor risk patients suffering from intestinal obstruction. In five cases of our entire series a primary resection was undertaken for gangrenous bowel. The etiological factor in two cases was strangulated hernia, in one case adhesive obstruction, in one case volvulus, and in one case, mesenteric thrombosis. Of these, four patients died (80 per cent), three from peritonitis and one from coronary disease. Although it is conceded that these patients were desperately ill, it is for this reason that we believe exteriorization should have been done. In two other cases, the gangrenous loop was exteriorized and enterostomy performed, and one of these patients (etiology: volvulus) died, a mortality of 50 per cent. In four cases the perforation was closed and a short-circuiting side-to-side intestinal anastomosis was performed with a mortality of three cases (75 per cent). In all, in eleven patients a surgical procedure of great magnitude was undertaken in order to deal with gangrene of the bowel, with a mortality of eight cases, or 72.7 per cent. A thorough study of these cases convinces us that exteriorization of the involved loop would have materially lowered our mortality rates. All of these patients, with one exception, died of peritonitis, and while it is possible that the contamination of the peritoneal cavity had occurred at the time of operation, it is likewise conceivable that excessive operative manipulation, no matter how skillfully performed, increases the dangers of peritonitis when necrosis of the bowel wall is present.

3. *Cecostomy and Enterostomy.* While cecostomy is a desirable procedure and a life saving measure in colonic obstructions, the same cannot be said for enterostomy in small bowel obstruction. Enterostomy is usually undertaken as a last desperate measure after conservative methods of treatment have failed, or when the viability of the bowel seems to be impaired at the time of operation. Occasionally, an enterostomy tube is placed into a small perforation in the intestine, a procedure usually carrying with it a 100 per cent mortality. The types of enterostomy most frequently employed were the Witzel or Stamm methods. These offer sufficient drainage and close promptly following removal of the tube.

Enterostomy alone was performed in 18 cases in our entire series. These cases were divided as follows: paralytic ileus, seven cases; adhesive obstruction, eight cases; obturating obstructions (gallstones), three cases. Fifteen of these patients died (83.3 per cent). This represents the highest mortality of any procedure carried out on our entire series. We feel that enterostomy is never indicated in paralytic ileus and only is indicated in cases of small intestinal mechanical obstruction in which it is not possible to pass the Miller-Abbott tube which acts as a nonsurgical enterostomy. If, at the time of operation, necrosis of the bowel wall is present, the period of usefulness of enterostomy has passed, except insofar as it is combined with other procedures, such as resection. Probably the only real indication for enterostomy is its use to reduce tension on a suture line or occasionally for feeding.

Cecostomy, on the other hand, is eminently successful in the treatment of obstructions of the large bowel. It is often possible to perform this aseptically and peritonitis results less frequently than with enterostomy. We have employed the purse string suture method with a Pezzer catheter as the dealing with carcinomas of the sigmoid and rectum which are the usual obstructing agents. While a transverse colostomy (Devine) may be desirable in many cases, it is rarely feasible in acute obstruction. In 21 cases of obstruction of the large bowel (including strangulated hernia) colostomy was performed 15 times with ensuing mortality in 7 cases (53.9 per cent). In 11 of these cases cecostomy was performed with a mortality of 55.5 per cent (6 cases), while in 4 cases sigmoidostomy was performed. In these cases a double-barrelled colostomy was made, three times because of carcinoma of the rectum and once for stricture of the rectum due to lymphogranuloma inguinale Only one patient in this group died, a patient who had had an obstruction for two weeks.

OPERATIONS FOR INTESTINAL OBSTRUCTION

The dangers of operative procedure on a damaged segment of bowel are well known. The release of a band or of a strangulated hernia is attended with little danger if the bowel is still viable. When necrosis has occurred the danger increases by leaps and bounds. Even the handling of a nonviable loop of bowel may initiate peritonitis, and entering into the lumen of the bowel for the performance of enterostomy or resection is extremely hazardous.

As a rule, the simplest procedure and the one involving the least handling of intestine is the procedure of choice This is so well recognized that in obstructions of the colon many surgeons do a simple cecostomy without attempting to explore the abdomen, reserving this maneuver for the secondary operation. Similarly, in small bowel obstruction, manipulation of bowel while dividing adhesive bands not uncommonly causes perforations and gross leakage of infected bowel contents into the peritoneal cavity In at least two cases in our series this accident occurred and resulted in a fatal peritonitis. With proper diagnosis and early treatment, the need for enterostomy should largely be eliminated and operative treatment then falls into three categories: (1) simple division of obstructing bands or strangulating rings; (2) procedures for dealing with gangrenous intestine, and (3) cecostomy for obstruction of the colon.

1. *Division of Constricting Bands or Strangulating Rings.* This procedure is almost invariably the choice in the early operative treatment of simple obstructions and strangulated hernia. With viable bowel and a minimum of handling there should be practically no mortality This procedure was carried out in 12 cases of adhesive obstruction of the small bowel and in 29 cases of strangulated hernia. There were four mortalities in this group, of which two were due to postoperative pneumonia, one to pulmonary embolus, and one to cardiac failure on the first postoperative day. In all, 36 patients survived, a mortality rate of 9.7 per cent. This illustrates the points previously stressed, that early diagnosis and early operation will bring the mortality rate in intestinal obstruction down to a reasonable figure. Excluding the cases of strangulated hernia, there were two mortalities in 12 cases of simple obstruction or 16.6 per cent. One of these was in a patient of 80 years who developed hypostatic pneumonia on the tenth postoperative day when she had almost completely recovered from the effects of the operation. The other mortality resulted from bilateral bronchopneumonia on the seventh postoperative day. These figures illustrate more vividly than any lengthy discussion the importance of early diagnosis and treatment and the necessity of restricting operations to the simplest procedures if at all feasible.

2. *Procedure for Gangrenous Segments of Bowel.* When gangrene of the bowel has occurred, it is necessary to remove the gangrenous loop of bowel

serum proteins are actually depleted, they may be restored by transfusions of plasma or whole blood[21]. When they are elevated as a result of hemoconcentration following excessive water loss, the restoration of the normal water balance will effectively restore them to a proper level.

Blood transfusion is frequently an important adjuvant to treatment. In strangulating obstructions, the total blood loss into the lumen of the bowel and the peritoneal cavity may be very severe. This must be immediately replaced by large and often multiple transfusions. In addtion, shock which is frequently associated with intestinal obstruction is best treated by blood transfusions. As a preliminary to operative intervention, transfusions are particularly valuable and may be life saving in cases in which surgical intervention is extensive.

In our experience the use of drugs to stimulate peristalsis has been disappointing. It is obvious, of course, that their use is contraindicated in mechanical and strangulating obstructions. In adynamic ileus we have rarely been successful in alleviating the distension by the use of pitressin, physostigmine or prostigmine. There may be some advantage in the use of these drugs in the immediate postoperative period to prevent abdominal distension, but we feel that they are of little or no value in the treatment of advanced adynamic ileus. Spinal anesthesia has not been used in this series of cases as a mode of therapy and we hesitate to recommend it.

A word must be said about adequate vitamin intake. In all patients suffering from disturbances in the gastrointestinal tract, the absorption and utilization of vitamins is diminished.[21 22] This may seriously interfere with the postoperative course and with wound healing. In patients who have had restriced dietary intake and in whom suction has been used for many days, vitamin C should be administered parenterally.

The routine use of suction in the postoperative state should be emphasized. After every operative procedure for intestinal obstruction we have instituted continuous duodenal suction. By eliminating distension and relieving the pressure on a compromised loop of bowel or on a suture line, it is of inestimable value.

While the use of oxygen in high concentration was not attempted in this group of cases, it is apparent from the work of Fine and his associates[23] that it is of definite value and is certainly indicated in the conservative treatment of intestinal obstruction.

MORTALITY

The mortality rate in intestinal obstruction is very high. In our entire series, 46 patients died, a mortality rate of 44.2 per cent. In four cases, the patients died within a few hours after admission, without having been operated upon. If we exclude these from our series, we have a mortality rate of 42.3 per cent for all cases receiving treatment. Operation was performed in 93 cases with mortalities in 38 of this group, or in 40.8 per cent. In 11 cases, no operation was undertaken and three patients survived, a mortality of 72.7 per cent. However, the four patients who died on admission are included in this group and the revised mortality rate for nonoperative cases would be 57.1 per cent.

Adynamic or paralytic ileus, in our series, proved to be the most serious condition causing intestinal obstruction. Nine patients of the entire group died, a mortality of 75 per cent. In 10 cases, peritonitis was the inciting cause of the ileus and it is conceivable that this accounted in no small measure for the high mortality rate. Strangulated hernia, on the other hand, offered the least grave prognosis. In 34 cases, there were five deaths or 14.7 per cent. In three method of choice in our cases Although the mortality rate was very high in our group of eleven cases (55 5 per cent) this is in part accounted for by the fact that the average duration of obstruction preceding operation was nine days in the fatal cases In the patients who survived, the average duration of obstruction was four and one half days Occasionally it is possible to perform a sigmoid colostomy in cases of obstruction due to carcinoma of the rectum This may occur in early cases before terrific distension of the bowel has occurred with consequent thinning of the bowel and possible gangrene When it is feasible, it is usually accompanied by a low mortality rate In four cases operated on by this method there was one mortality (25 per cent)

ADJUNCTS TO TREATMENT

Inasmuch as all patients with intestinal obstruction are seriously ill, the details of general surgical care assume a rôle of great importance The management of fluid and electrolyte balance, transfusions nutrition and the prevention of pulmonary complications are problems which are vital to a favorable outcome It is well recognized today that although sodium chloride has no specificity in the treatment of high obstructions, it is nevertheless essential when the loss of chlorides has been marked Control of the water balance is urgent because of the marked dehydration caused by vomiting It is safe to assume that these patients have lost at least the six per cent of body weight in fluids that Coller and Maddock[19] have determined to be the average in severe dehydration This amount must be made up at once and in the average patient the administration of 3,000 to 4 000 cc of fluid will be indicated Furthermore if treatment by suction is instituted, and no fluid is retained by mouth, a daily amount of fluid which will balance the loss due to suction, excretion of urine, and insensible loss through skin and lungs is indicated This usually amounts to 3,500 or 4,000 cc daily, if this schedule is adhered to, dehydration will not occur

Preservation of the salt and protein balance is another problem facing the surgeon Undoubtedly electrolytes are lost in large amounts in persistent vomiting and estimation of the serum chlorides will indicate the extent of this loss As a rule, the higher the obstruction in the intestinal tract, the greater the chloride loss When this loss is marked, it can be rectified by the administration of hypertonic saline solution, although the use of normal saline or Ringer's solution is probably safer The amount of saline to be administered can be estimated readily by the formula proposed by Bartlett and his coworkers[20] This formula is For each 100 mg that the plasma chloride level needs to be raised to reach the normal, the patient should be given 0 5 gm of salt per kilogram of body weight The dangers of excessive salt intake in a seriously sick patient are well known, and it is therefore advisable to check the plasma chlorides repeatedly until normal levels have been reached A slight excess of the calculated amount of sodium chloride to restore the plasma chlorides to normal may, however, be given without danger Associated with the loss of chlorides, changes in the serum protein values are frequently noted Occasionally, in long standing illnesses preceding the onset of acute obstruction the proteins may be depleted, but more commonly, because of the extensive dehydration, the values for the serum proteins are increased This may be misleading because when the water balance is restored, the value for the serum proteins may be found to be lowered to the pre edema or edema levels If salt has been given to excess, edema may then occur and may seriously interfere with the postoperative course When the

CHART 9

CAUSES OF DEATH

Cause of death	*Adynamic ileus*	*Strangulated hernia*	*Small bowel obstruction*	*Large bowel obstruction*	*Total*
Peritonitis	9	2	15	5	31
Cardiac or cardio-pulmonary	0	2	0	4	6
Pneumonia	0	0	3	1	4
Pulmonary emboli	0	1	0	1	2
Shock	0	0	2	0	2
Unknown	0	0	1	0	1
TOTAL	9	5	21	11	46

to peritonitis and confirmed by operation or autopsy. In most of these cases, gangrenous or nonviable bowel was present at the time of operation or observation. In a few, peritonitis followed the injudicious use of enterostomy or more extensive operative procedures. Four patients (8.7 per cent) died of pneumonia and 6 (13.1 per cent) died of cardiac or cardiopulmonary diseases. In five cases of our series the cause of death was not definitely known. In two cases, the clinical course strongly suggested pulmonary emboli; in two other cases (one of volvulus and one of mesenteric thrombosis) shock was considered the cause of death and in one case, a patient who died 14 hours after admission, no cause could be definitely stated.

The high incidence of peritonitis as a cause of death is to be expected on the basis of the pathological physiology and pathology of intestinal obstruction. The damage to the bowel wall as a result of distension causes increased permeability to bacteria and peritonitis often ensues without gross perforation of the bowel wall. In many cases bowel necrosis was present at the time of operation and in these patients a fatal outcome was almost inevitable. Nothing in this series lends credence to the toxic theory of death in intestinal obstruction. The sequence of events in most cases and the operation or postmortem findings were too conclusive to permit of speculation as to extraneous factors in the fatal outcome. We feel that in no case did a disturbance of the chlorides lead to death, and although potassium studies as advocated by Scudder and his co-workers[24] were not made, it seems reasonable to believe that altered potassium metabolism, if present, was but one incidental factor.

SUMMARY AND CONCLUSIONS

1. A series of 104 cases of acute intestinal obstruction due to thirteen etiological factors is presented. The incidence of cases in this series conforms closely to other reported series.
2. The pathological changes which occur are directly attributable to the disturbances in the normal physiology of the bowel caused by the obstruction.
3. Distension and impairment of the circulation of the bowel are the principal changes which occur.
4. The symptoms most frequently noted are intestinal colic, vomiting, distension and obstipation.
5. The physical findings commonly encountered are distension, abdominal tenderness and rigidity, and the signs of toxemia.
6. Treatment is based on two factors: (a) the location of the obstruction, and (b) the nature of the obstructing agent.
7. In strangulating obstructions immediate operation is imperative. In simple obstruction of the small bowel relief of the distension may cause the obstruction to relent.

patients of this group death was due to coronary disease, pulmonary embolus and cardiac failure respectively, and in only one case was resection for gangrenous bowel undertaken. There were 21 fatalities in 39 cases of mechanical obstruction of the small intestine (exclusive of strangulated hernia), or 53.8 per cent, and in 19 cases of obstruction of the colon there were 11 deaths, or 57.8 per cent. This includes three patients who died within six hours of admission to the hospital and who received only supportive treatment. Considering this factor, the mortality in treated cases of obstruction of the large bowel was eight cases, or 42.1 per cent.

CHART 8

DURATION OF OBSTRUCTION AND MORTALITY

Cause of Obstruction	Less than 24 Hours		Less than 2 days		Less than 4 days		Less than 1 week		1 week or more					Per Cent Died
	Lived	Died	Lived	Died	Lived	Died	Lived	Died	Lived	Died	Total	Lived	Died	
Adhesive obstruction			4	2	9	4	1	1	3	4	28	17	11	39.3
Gallstone obstruction								3			3	0	3	100.0
Carcinoma		2	1	1	1	1		3	2	3	14	4	10	71.4
Adenomatous polyp						1					1		1	100.0
Lymphogranuloma									1		1	1		0.0
Postoperative eventration							1	1			2	1	1	50.0
Ileitis										1	1		1	100.0
Strangulated hernia	10	1	15	1	3		3	3			34	29	5	14.7
Volvulus	1			1		1		1			4	1	3	75.0
Intussuseption					1					1	2	1	1	50.0
Paralytic ileus		2			2	3	1	4			12		9	75.0
Mesenteric thrombosis		1									1		1	100.0
Cause unknown		1									1		1	100.0
Totals	11	7	18	5	16	10	6	16	6	9	104	58	46	44.2 (Av.)

There is a definite and consistent relationship between the mortality rate and the time which had elapsed between the onset of obstruction and the relief of the obstructing mechanism. It is obvious from the nature of the physiological disturbances which occur in obstructions that the time factor is of paramount importance. In strangulating obstructions the deleterious effects of the marked blood loss are added to the danger of peritonitis. Chart 8 illustrates the increasing mortality associated with delay in treatment. In 25 cases of strangulated hernia in which the obstruction had been present for less than two days, the mortality rate was 8 per cent, whereas in the nine patients who were operated upon after a delay of more than two days, the mortality rate was 33.3 per cent. Similar findings are noted in the cases of obstruction due to intussusception and volvulus.

In simple obstruction the onset of necrosis of the bowel wall is dependent on the distension factor and the element of direct occlusion of the blood supply is not present in the early stages. Therefore, delay in treatment is not so disastrous. We note, however, that in 19 cases of simple adhesive obstruction treated within the first four days of illness there were six deaths, a mortality rate of 31.6 per cent, while in the nine cases in which obstruction had been present for more than four days before treatment was instituted there were five deaths (55.5 per cent).

A survey of the factors causing death in our series showed that peritonitis was the most frequent cause. In 31 or 67.7 per cent of the fatal cases of our entire group, death was definitely attributable

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RÉSUMÉ

Obstruction Intestinale Aiguë

L'auteur rapporte 104 cas d'obstruction intestinale due à treize facteurs etiologiques différents. Les symptômes les plus fréquemment observés furent colique intestinale, vomissements, distention et obstipation. Le clinicien constate la distention et la douleur abdominales, la rigidité du ventre et les symptômes de toxémie. Le traitement est determiné et par le siège et par la nature de l'obstruction. Dans les cas simples d'obstruction de l'intestin grêle, le soulagement de la distention peut remédier à l'obstruction. La suction duodénale continue est utile pour ce but. Dans les cas d'étranglement l'opération est urgente. L'operation doit être précoce dans les obstructions du côlon. Ayez recours aux procédures les plus simples qui puissent remédier à la condition et qui maintiennent ou restaurent la viabilité de l'intestin. Il y a un rapport défini, entre la durée de l'obstruction et la mortalité.

ZUSAMMENFASSUNG

Akuter Darmverschluss

Eine Serie von 104 Fällen von akutem Darmverschluss, die auf 13 verschiedenen Ursachen beruhen, wird veröffentlicht. Die Sypmtome, die am häufigsten beobachtet werden, sind Darmkoliken, Erbrechen, Verstopfung und aufgetriebener Leib. Objektive Symptome, die gewöhnlich gefunden werden, sind, aufgetriebener Leib, Schmerzen, Bauchdeckenspannung und die Zeichen einer Toxämie. Die Art der Behandlung wird beeinflusst durch 1) den Ort, 2) die Natur des Verschlusses. Beim einfachen Dünndarmverschluss kann oft die Beseitigung des aufgetriebenen Leibes das Verschwinden des Ileus verursachen. Daher ist eine dauernde Dünndarmdrainage für diesen Zweck sehr nützlich. Bei einem Strangulationsileus muss eine sofortige Operation vorgenommen werden. Frühzeitige Operation ist notwendig bei einem Dickdarmverschluss. Die Operation soll sich beschränken auf die einfachsten Massnahmen, welche den Zustand beheben und die Lebensfähigkeit des Darmes erhalten, oder wieder herstellen. Es besteht eine ganz ausgesprochene Beziehung zwischen der Dauer des Darmverschlusses und der Mortalität.

SUMARIO

Obstrucción Intestinal Aguda

Una seri de 104 casos de obstrucción intestinal debido á trece factores etiológicos distintos es presentada. Los síntomas mas frecuentemente notados fueron cólico intestinal, vómitos, distención y obstipación. Los signos físicos generalmente encontrados son distensión, dolor abdominal, rigidad muscular y toxemia. El tratamiento está basado (1) en la localización y (2) la naturaleza del agente obstructor. En obstrucciones simples del intestino delgado el alivio de la distensión puede hacer ceder la obstrucción. Drenage duodenal

8 Continuous duodenal suction has a definite field of usefulness in the treatment of simple mechanical obstructions of the small bowel and in adynamic ileus In the former group great caution must be exercised to determine when suction is no longer efficacious

9 Operative treatment should be limited to the simplest procedures which will relieve the distension and obstruction and maintain or restore the viability of the bowel Extensive operative procedures are accompanied by extremely high mortality rates

10 Enterostomy has been almost completely displaced by the Miller Abbott tube as a procedure for applying decompressive measures to the site of obstruction It is never indicated in adynamic ileus

11 In obstructions of the colon early operation is essential Cecostomy is the procedure of choice

12 The general principles of electrolyte, water protein and vitamin balance must be applied to these seriously ill patients Blood transfusions are of great value as adjuvants to operative procedures

13 The employment of drugs to stimulate peristalsis has been valueless in our hands We feel that the administration of oxygen in high concentrations is of definite value

14 The mortality rate of intestinal obstruction is still very high Early diagnosis, immediate operation in strangulating obstructions the careful use of suction in indicated cases, the elimination of enterostomy except in isolated cases and careful attention to the general status of the patient will lower the mortality rate

15 There is a definite relationship between the length of time during which the obstruction has been present and the mortality rate

16 The most frequent cause of death is peritonitis Nothing in our series lends credence to the toxic theory of death in intestinal obstruction

Note We wish to thank Dr A J Beller and Dr A J Rongy for the privilege of studying cases on their ward and private services We are also indebted to Dr M Goldman for his valuable assistance in the use of the Miller Abbott tube

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APPENDICITIS: ITS DIFFERENTIATION AND TREATMENT

REVIEW OF 500 CASES

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UPON request I shall endeavor to give you, as nearly as I can, a composite picture of appendicitis and those conditions arising in the right side of the abdomen that may be confused with it. The subject matter will be based upon knowledge gained from the literature and a personal experience of more than thirty years. If what is said will in any way assist in slowing down the rising mortality in this condition, my time will have been well spent.

Involvement of the appendix is usually the result either of an inflammatory reaction or of a physiological dysfunction resulting from mechanical interference. The latter we designate appendicosis. Both are clinical entities and present a train of distinct diagnostic symptoms.

The United States leads all other countries in deaths from appendicitis. The mortality is 18 for each 100,000 and equals the combined death rate of ectopic pregnancy, pyosalpinx, gall stones, surgical disease of the pancreas, spleen and thyroid. It takes 20,000 of our people annually and is the cause of one death every 26 minutes. When operation is delayed and cathartics and enemata are given in an effort to obtain relief without operation, one in every 11 patients dies. If repeated purgation is practiced before operation, one in every four patients dies. Only one death occurs in every 96 cases if purgation is not practiced. If prompt and proper treatment is given, the mortality in appendicitis should not exceed one in every 240 cases.

It has been my privilege to pass through more than three decades of the appendiceal dilemma. Many years ago death from this disease was attributed to inflammation of the bowel. In those days the question was: "Shall we or shall we not operate in appendicitis?" In the second decade the duration of the attack was the question of paramount importance. The literature now abounds with discussions of the etiology, diagnosis, treatment, and mortality of this disease—mute evidence that the problem is not yet settled in the minds of many. Municipalities are so concerned over the matter that they are publishing facts related to the disease in the lay press and are bringing them to the attention of high school students through lectures and pamphlets. Philadelphia, for example, has made an intensive effort to inform its people of the importance of the early recognition of the condition, of prompt and proper care of the painful abdomen, and of the ever increasing mortality of appendicitis.

Acute appendicitis probably is our oldest and best known surgical disease. The embryology with its many resultant locations is interesting, its anatomy is well known, its etiology complex and its pathogenesis much discussed. Its symptomatology is so constant and so consistent with the degree of involvement of the appendix that it is a pleasure to review it. Pain, followed by nausea, with or without vomiting, tenderness, fever, increase in the pulse rate, and leucocytosis, always in sequence, form the well known Murphy syndrome.

continuo es beneficioso para obtener éste proposito. En obstrucciones por estrangulacion operación inmediata es imperativa. Operación temprana es esencial en obstrucciones del colon. La operación debe [illegible] al procedimiento mas simple [illegible] la condición y ayuda [illegible] del intestino. Hay [illegible] definida entre la duracion de la [illegible] y el por ciento en la [illegible]

RIASSUNTO

Ostruzione [illegible]

Viene presentata [illegible] casi di ostruzione [illegible] 13 fattori etiologici. I sintomi piu frequenti sono: colica intestinale, vomito, distensione, constipazione. I segni fisici che si incontrano usualmente, sono, distensione, dolenzia addominale, rigidità e segni di toxemia. Il trattamento si basa sulla località e la natura dell'agente ostruente. Nell'ostruzione strazzata l'atto operatorio immediato è necessario. Una *operazione* precoce è essenziale nella ostruzione del colon. L'atto operatorio deve essere limitado alla più semplice tecnica, per alleviare la condizione e mantenere e ristorare la viabilità dell'intestino. Esiste una relazione definitiva tra tempo dell'ostruzione e mortalità.

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THE NATIONAL ASSEMBLY OF THE UNITED STATES CHAPTER OF THE INTERNATIONAL COLLEGE OF SURGEONS WILL BE HELD FEBRUARY 11 TO 14, 1940, AT VENICE, FLORIDA, UNDER THE DIRECTION OF INTERNATIONAL PRESIDENT-ELECT DR. FRED H. ALBEE AND THE PRESIDENCY OF DR. FREDERICK M. DOUGLASS.

familial. We have removed the appendix of four in one immediate family, and out of eight members in this family five have had their appendices removed and one has had two attacks.

While to a lesser degree the number of attacks have a place in determining the desirability of operation, the point should not be overlooked. It is more difficult for an appendix showing scar tissue, the result of previous inflammation, to weather the onslaught than a normal one.

TENDERNESS

Tenderness, rigidity, and muscular spasm are our most valuable guides in determining the degree of involvement of an affected part. The more extensive the infiltration of the walls of the appendix, or the greater the distention of the lumen, the more pronounced the tenderness, rigidity, and the muscular spasm will be. The point of maximum tenderness will be over the appendix, wherever it may be. The caput coli together with the appendix may lie beneath or anywhere between the costal margin and the pelvic floor. When located near the lower pole of the kidney or in the culdesac, the differential diagnosis becomes more difficult because symptoms of other conditions are quick to arise.

The attitude of the examiner should be one that will gain the confidence of the patient. The patient usually gives us an idea as to the location of the point of maximum tenderness when first seen. After this observation the examination should proceed on the side opposite the affected one. Many years ago Robert M. Morris of New York called attention to two points we now designate as right and left Morris points. They are located on each side of the median line just below the umbilicus. In examining the lower abdominal quadrants, we always take the left Morris point into consideration immediately after palpating the region of the sigmoid. These signs are not always present, but when positive, and it is surprising how often tenderness, rigidity, and muscular spasm are elicited here, they lend the clinician an assurance that the appendix is involved. The left sign is occasionally negative when the right is positive, but if positive on the left it is always positive on the right.

After eliciting the response to these signs, we search for the caput coli, knowing that here we will find the appendix and the point of maximum tenderness and sensitiveness. Upon sensitiveness we depend more than anything else, as an indicator of the involvement. It is the amount of involvement, estimated in our own minds, that tells us how urgent operation has become. And it is the point of maximum tenderness that gives us a cue as to the location for the incision.

FEVER AND CHILLS

Fever is practically always present in acute appendicitis and varies in the low degrees. It is the manifestation of the absorption of toxic products. Absorption cannot occur until swelling of the mucosa appears; hence, when present it always is indicative of activity. However, after activity has been established, the disappearance of a high fever and leucocyte count may be a good or bad omen. If the appendix is draining into the caput coli, it is good. If the appendiceal artery is blocked, it is bad. A gangrenous appendix does not always give pain and never absorbs toxins; hence, fever and leucocytosis may temporarily disappear only to be followed in a few hours by leakage or perforation accompanied by a spreading peritonitis.

On the other hand, when invaded by certain strains of streptococci or anaerobes, the temperature elevation may far exceed that of an ordinary case. It is in this type of infection involving the appendix that the differential diagnosis may become preeminently difficult.

PAIN

In the absence of concomitant disease pain is the primary and first symptom in acute appendicitis. In 99 per cent of cases the invasion of the appendix by the offending organism begins in the mucosa. As with all inflammatory lesions the invasion is accompanied by swelling. The inelastic fibrous coat of the appendix prevents expansion and produces strangulation. Pain and colic are the result. The pain is transmitted through the sympathetic nervous system to the cord and through the anterior and lateral cutaneous branches of the peripheral intercostal nerves to the abdominal wall. Later the pain is localized over the appendix because of extension of the involvement through the walls to the serosal coat and of the swelling to the meso appendix, which carries sensory fibers. The parietal peritoneum usually also is involved by this time and it is much more sensitive to pain than the visceral peritoneum. We have been taught that in the first few hours of the attack the pain is of a diffuse colicky nature, spreading over the entire abdomen, but it may be epigastric, umbilical or over the appendix, whatever its location.

In a recent study of 500 consecutive cases of appendicitis without concomitant disease, 67 of which were classified as chronic, we found the pain of the diffuse abdominal type in 168, epigastric in 107, and over McBurney's point in 225.

NAUSEA AND VOMITING

Nausea and vomiting are reflex symptoms — the result of strangulation of the mucosa. As soon as the mucosa begins to swell, the ileocecal valve closes, a reverse peristalsis ensues, and the content of the small bowel is poured into the stomach. The stomach does not tolerate bile unless it has become accustomed to it, and nausea with or without vomiting follows. Vomiting we think is of especial importance and has a bearing on the gravity of the attack.

We were once removing the appendix of Dr. J. under local anesthesia. The appendix was normally situated and easily visible after the peritoneum had been opened. We very lightly picked it up with a Russian tissue forceps without pulling on the meso appendix which we know will produce pain. He laughingly said, "Will you take your fist out of my stomach?" We have since verified this finding on other patients and now believe that, if the involvement of the wall or the distension of the lumen is of sufficient degree, in all cases vomiting will follow the nausea. In fact practically all cases of appendicitis we operate on show advanced pathology when vomiting has been present. It is just a little point, but the little points are the ones that get us into the two per cent division. Ninety eight per cent of the time we will be right any way.

Three hundred sixty of our aforementioned 500 cases had nausea, and 235 had vomiting. Sufficient pressure from within the lumen will give a complaint like that due to changes in the walls, and the earlier we can get the appendix out in a case in which vomiting is present, the better we like it. Nature is a wonderful doctor. She knows an empty bowel at rest is an ideal situation in cases of this kind, and until something happens to check her efforts, vomiting will continue.

AGE, FAMILY HISTORY, NUMBER OF ATTACKS

Some of us pay little attention to the age incidence. Nevertheless it has its importance. Appendicitis is far more fulminating in the very young or aged than when seen between the second and third decades of life. In the aged symptoms are often atypical and rupture occurs without the usual warning.

The family history in this disease also is of importance. Appendicitis is sion is of sufficient degree, appendicosis is accompanied by nausea; cecal stasis is not. As life goes on and the lymphoid tissue in the appendix is replaced by fibrous tissue, this condition becomes less frequent; and unless all other causes of discomfort in this region have been eliminated and the patient is desirous of relief, it is not surgical.

DIFFERENTIAL DIAGNOSIS

Diseases with symptoms simulating appendicitis have been attributed to almost every disease known, from tonsillitis to tabes dorsalis. To attempt differentiation of each would require more time than might be permissible here. Nothing new has been brought to our attention in late years except possibly the abdominal symptoms of an endocrine imbalance. Therefore, with this exception we will do little more than enumerate most of the conditions ordinarily summarized in the differential diagnosis of appendicitis.

Diseases of the gall bladder, stomach, and genito-urinary system present the symptoms that most commonly are confused with those of appendicitis. In the differential diagnosis of these conditions certain prominent symptoms common to all may present themselves, viz., pain, nausea and vomiting, tenderness, rigidity, fever, increased pulse rate, and leucocytosis. Their proper interpretation at the bedside usually will decide the question of differentiation and practically always the question of hospitalization. The degree of manifestation of the symptoms will depend upon whether they are acute or chronic.

Let us first discuss the acute lesions and the ruptured gastric or duodenal ulcer.

With the symptoms of appendicitis fully in hand, let us compare the pain and tenderness as seen in the other conditions. The pain in these conditions usually is at or near the site of pathology. The tenderness likewise will be over the gall bladder or kidney, as the case might be. In perforating ulcers accompanied by leakage, the pain may extend from the costal margin to the pubis, and the tenderness is likewise extensive. Of all the acute abdomens, we believe the pain, tenderness, board-like rigidity, and muscular spasm present in ruptured gastric or duodenal ulcer are most severe. Large doses of morphine are required for relief, whereby much smaller doses relieve the pain associated with the other lesions.

We are now taught that the pain in the case of ureteral or gall bladder stone is due to a distention of the viscus from pressure of the backed-up fluid and not due as once thought to movement of the stone. The infected gall bladder always is sensitive to perpendicular percussion over the viscus. The same type of tenderness is present in kidney infections when there is retention and infection. Tenderness over the kidney on both light and deep pressure is marked in the presence of an obstruction to the ureter or at the pelvis of the kidney. The point of maximum tenderness is in the costovertebral angle. It usually can be easily elicited by placing three fingers in the angle and attempting to lift the patient when on the bed in the recumbent position. This sign may be tested on one or both sides at the same time. If not found by this method, one must resort to fist percussion. When the pain in gall bladder disease is not over the viscus, in seven out of ten cases it will be referred under the right scapula; next in point of frequency it is epigastric, and next under the right or left clavicle.

In the chronic conditions epigastric or right hypochrondriac pain, relieved with or without food, or increased after a full meal but diminished after a small one, is of importance in the differentiation of gastric and duodenal ulcers. Pain on the ingestion of food suggests a stomach involvement, while pain accom-

When toxins are present in the appendix without absorption and the case appears in the afebrile state, one must rely principally on our old friends, pain, tenderness, and muscular rigidity, for guidance.

Chills occur with the fever only when the involving organisms and their products, or both, are thrown into the blood stream in large quantities, sometimes almost overwhelming the patient.

BLOOD COUNT

The total leucocyte count is a valuable aid in establishing a diagnosis. The polymorphonuclear leucocytes and the shift to the left described by Schilling are most helpful in determining the resistance of the patient toward the invading organism and the fulminating character. However, in a frank case of acute appendicitis the practice of sending a technician to the home for a blood count is a bad one. Not only are the history and physical findings of far greater importance, but in the end the physical findings must be the factor in the main decision — the advisability of operation. The delay brought about by this practice is not only unnecessary, but may be a contributing factor to a mortality.

CHRONIC APPENDICITIS—APPENDICOSIS

A few years ago, for lower right abdominal distress so many normal appendices were removed without relief that a period followed in which surgeons hesitated to remove the appendix in the absence of very definite fulminating symptoms. The existence of such an entity as chronic appendicitis became questionable.

For many years we have been teaching the students in the medical school that there are two kinds of appendicitis: appendicitis of the walls and appendicitis of the lumen of the appendix, or appendicosis. Appendicosis may be responsible for the development of an acute appendicitis of the walls.

The term "chronic appendicitis" from the pathologic viewpoint should be limited to certain cases of appendicitis of the wall. When infected by the usual organisms, ordinarily an appendix with wall involvement does not long lie in a quiescent state. It becomes fulminating, ruptures, and acts as a focus for a localized or diffuse peritonitis; or the inflammatory process subsides, and the round cells are replaced by fibroblasts, the process finally terminating in a mass of scar tissue formation. When attacks of acute inflammation occur at irregular intervals, we are in agreement that the process should be termed "recurrent appendicitis." We also are in agreement that if a sufficient number of attacks occur, the appendix may become a cord-like mass known as "appendicitis obliterans." Somewhere between acute appendicitis and appendicitis obliterans, chronic appendicitis must be found. The symptoms of this type of appendicitis will depend upon the complications and sequelae of previous attacks of acute appendicitis more than upon the condition of the wall of the appendix that is left in. If these are such as to produce deformities from adhesions that will interfere with physiological functions and give symptoms, this type of chronic appendicitis is a surgical disease, otherwise it is not.

The symptoms in appendicosis are quite different from those produced by appendicitis of the wall and are mechanical rather than infectious. The patient does not complain of pain, but of a discomfort over the appendix. The discomfort is an appendiceal colic due to pressure within the lumen. The appendix is signaling that it is packed and trying to empty itself. A similar discomfort is experienced in cecal stasis. In appendicosis the caput coli may be palpated but it is not so markedly distended as in cecal stasis. Neither are there positive left and right Morris signs th [illegible] ricant in differentiation. W

If the clinical picture is against the disease under consideration, if the disease is not acting as it should according to its duration, and if the physical findings are not in keeping with the clinical picture in general, defer operation until such a time as developments are satisfying.

TREATMENT OF APPENDICITIS AND ITS COMPLICATIONS

The treatment of appendicitis now is considered surgical beyond question, but the technic of operation seems to be a matter of individual taste. We should have passed through three eras of surgery — the antiseptic, aseptic, and anatomic — and should now be in the fourth or physiological. During the aseptic era we feared the microbe because Leuwoenhok of Delft had proved its existence. During the anatomic era we feared nothing, because asepsis had taught us that in the absence of germ life the human body could be subjected to many kinds of long incisions, and the viscera could be manipulated in a hitherto undreamed of manner. Long incisions and extensive *manipulations* became quite popular. It was said that long incisions would heal as quickly as short ones, so why not use them and take a good look? Explorations became quite common, prolonged the operation, revealed little, and in many cases were dangerous. In time it was found that long incisions, except in the skin, did not heal as readily as short ones. Patients who had had incisions from the ensiform cartilage to the symphysis pubis began to come back with large ventral hernia. These hernia were hard to repair. Patients died from complications, such as pneumonia, and secondary repairs were not always successful.

Something had to be done about this and so we entered the physiological era in which most of us should now be working. Careful study should be made of all patients before subjecting them to operation. X-ray examination of patients in suspected acute appendicitis is of little value. Because of the delay and required manipulation of the patient's abdomen, probably such an examination seldom is justified; flat pictures, however, may aid in determining the presence or absence of gas in perforating ulcers.

On the other hand, with patients suspected of having chronic appendicitis, an x-ray examination is of the greatest value; and whenever there is any doubt about the diagnosis, it should not be omitted. Such findings as tenderness over the appendix which shifts with its change in position, fixation of the appendix, and pain referred to other parts of the abdomen by pressure on the appendix are valuable diagnostic signs elicited by x-ray examinations. Should the appendix not be normally situated, the x-ray will reveal the abnormal location. Besides the direct signs of appendiceal involvement, such examinations as cholecystography, the barium meal examination of the stomach and duodenum, the examination of the colon, and the examination of the urinary tract for calculi help eliminate most of the conditions confused with appendicitis. In suspected acute appendicitis in children, we like to have our roentgenologist assure us that his films do not show any involvement of the right lung with referred pain into the lower right abdomen before we proceed with an operation.

After collecting all the data possible on a case, the operation should be planned with the view of subjecting the patient to the least possible risk. Once a diagnosis is established, the operative procedure should be governed accordingly. Should the pathology necessary to account for the symptoms not be found on the approach of the affected part, then and then only is exploration justifiable. Our leading authorities now agree that neither the hand nor the eye can find more than five per cent of the abnormalities that cannot be found before exploration.

panying duodenal involvement usually develops several hours after eating Sometimes the evening meal will relieve the pain experienced during the afternoon Do not lose sight of the fact that gastric and duodenal ulcers may exist concomitantly In either case the pain is accompanied by and probably due to distention of the viscus In most cases of duodenal ulcer the diagnosis is made easy by the location and character of the pain The time of onset and disappearance of pain on the ingestion of food the alternation of attacks with intervals of good health, abdominal distention belching of gas and the absence of nausea or vomiting in the presence of constipation are symptoms which when added to the findings of hyperchlorhydria by means of a test meal occult blood in the stool and an ulcer deformity by means of the x ray will, of course remove the diagnosis from the field of the impossible If the ulcer is located in the stomach, the pain and discomfort appear shortly after eating These patients are seldom free of pain unless the stomach is entirely empty Unless there is some obstruction at the pylorus or bleeding at the bed of the ulcer, vomiting is not customary Occult blood in the stool is not seen as often as in cases in which the ulcer is in the duodenum The almost constant presence of the gnawing sensation and distinct epigastric discomfort is helpful in the location of these ulcers

If these symptoms are accompanied by a sense of pressure and fullness in the region of the gall bladder and if there is nausea without vomiting and flatulence, gall bladder involvement with or without stones should be suspected The gall bladder pain also is different often requiring morphine for relief Vomiting also may relieve the pain Do not overlook the skin changes that may accompany gall bladder disease or cholemia Physical examination in these cases often elicits nothing more than points of tenderness, a palpable tumor usually is absent, and the enlargement of the stomach or stomach splashing is present only when there is some obstruction at or near the pylorus, the result of the location of the ulcer proper, scar tissue formation, or perigastric or duodenal adhesions Those of you who do not have access to an x ray will find the so called motor meal helpful in determining whether or not the stomach is enlarged Practically all of the meal should have left the stomach in four hours, and gastric lavage will relieve the pain in ulcer cases However, since the pain recurs in a short time, it is of little practical importance

Fever may be absent in gall bladder infection and attacks due to kidney and ureteral stones In infections of the gall bladder fever varies in the moderate degrees, while in infections in the genito urinary tract fever reaches the peak Ascending infections of the ureter develop in about ten days following a primary unrelieved infection of the urinary bladder and of course is usually accompanied by fever

The diagnosis of appendicitis in children and the aged, because of sclerotic changes in the vessels in the latter, is much more difficult than in the young or middle aged adult, but localized pain, tenderness, and rigidity following a period of constipation are almost pathognomonic

Time will not permit the discussion of conditions of the abdomen due to affections of the lung and kidney, abdominal symptoms and heart disease, tabes, tuberculosis, etc , but they usually are considered before reaching a decision Distention after eating, epigastric fullness and lower right quadrant distress when seen in primary or secondary hypogondal individuals should not lead one astray

Judgment is the backbone of all things but cannot be taught It may be gained only by experience and it is indeed unfortunate that we cannot pass it along the better the prognosis. This cannot be expected, however, in invasions by streptococci, since the invasion takes place principally in the peritoneal and subperitoneal lymph spaces.

POSTOPERATIVE CARE

Peristaltic rest is of prime importance as is duodenal drainage through the nasal tube. The green duodenal content is the thing that kills the patient. Let the tube siphon it into a container on the floor.

Regardless of the apparent extent of peritoneal involvement, all cases of acute grade four appendicitis and peritonitis are treated expectantly until the abdomen is soft and flat with little distension and rigidity, and the temperature and pulse are at or near the normal.

Unless there is some special contraindication, we operate in cases of acute appendicitis as soon as the diagnosis is established and treat the peritonitis according to the findings at operation. By so doing we control the advance of the disease. Morphine is given for its physiological effect, this being governed by the respiratory rate. The ideal respiratory rate is near twelve. At this rate there is no peristalsis. If the rate should reach eight, withhold the morphine until the rate begins to increase. If the morphine does not act well, use deodorized tincture of opium in forty drop doses. Give it in one ounce of water as a rectal injection. Digitalis is given intravenously with a venoclysis or intravenous injections. If the case is in extremis, give 5 cc. during or immediately after operation. If there is no improvement, repeat in 12 hours and give 1 cc. every 24 hours thereafter. This amount is sufficient to keep up the physiological effect because of its cumulative action. Continue the digitalis until there is a decrease in rate and an increase in amplitude or tension of the pulse, or nausea or diarrhea indicating toxicity from the drug.

Nothing is given by mouth or rectum until we are satified that no damage can be done by it. We then proceed cautiously. We first allow one ounce of water by mouth every hour for 24 hours. If this produces nausea, distension, or increase in the pulse rate, it is immediately withdrawn. If not, one ounce of any liquid except milk is allowed every hour the second 24 hours. Then, if well tolerated, liquids ad lib are given until peristalsis is reestablished. The patient then is placed on a soft diet.

To support the patient during this time, we inject intravenously 750 cc. of 5 per cent dextrose (about 400 calories in salt solution with 15 units of insulin (1 unit to each 3 Gm. of sugar) at least every 12 hours, or use a venoclysis with the same solution. The salt solution supplies the chlorides; the dextrose, the food; the water, the fluids; and the insulin burns up the excess sugar. If the progress is not satisfactory, as evidenced by a diminution of the distension with a dropping temperature and pulse rate, blood transfusions of 500 cc. of citrated blood are given daily as an adjunct. The pulse rate should serve as a guide, but do not be misled by the digitalis effect. Use as little digitalis as possible and watch for danger signals.

Of course, if the patient is in extremis when seen and dehydration is marked, sufficient fluids must be supplied to take care of the loss, estimated at six per cent of the body weight. The average normal adult in bed, weighing 150 pounds, requires 1,800 calories daily to prevent loss of weight and two or three quarts of water to prevent dehydration. This amount of fluid, therefore, plus the normal daily intake would likely be required to supply the loss before the patient could be put on so-called routine. Although it is safe to give six or eight quarts of fluid in the beginning, too much can be given and tends to produce edema. I have seen pulmonary edema,

OPERATION

In acute cases the adult is routinely given one-fourth of a grain of morphia and one-hundred-fiftieth of a grain of atropine as soon as practical after operation is decided upon and the abdomen is shaved. After removal to the operating room, the patient is anesthetized according to the preference of the anesthetist, there being no preference in the selection of an anesthetic in acute appendicitis. Ether is said to be harmless, but we prefer gas.

After the patient is anesthetized, the abdomen is painted with tincture of iodine. The incision is of the gridiron type and is located over the appendix, the location having been determined prior to operation by the point of maximum intensity, rigidity, and muscular spasm. After delivery and detachment of the meso appendix from the appendix, the base of the appendix is crushed with a hemostat. With the same ligature, usually plain catgut No. 1, the appendix and meso-appendix are ligated, the appendix first and the meso appendix second. With another ligature both the appendix and the meso appendix are tied. The second ligature serves a double purpose of reinforcing the first and supporting the stump during its sterilization. For this purpose carbolic acid or cautery is used. After sterilization of the stump the meso appendix is tied over it with the same ligature. The stump then is returned to the abdominal cavity, due care being exercised not to permit contamination of the abdominal wall. Tube and tissue drains are used according to indications and the abdominal wall is left open or closed with the least amount of catgut permissable. We seldom use more than 30 inches of catgut in completing the operation for removal of the appendix.

If peritonitis is present or expected the patients are cared for according to an outline that will be given later.

COMPLICATIONS

The principal complication of acute appendicitis is peritonitis. This may be localized or diffused. Its extent usually may be determined at the time of operation, and its treatment, of course, will depend upon how extensive the process has become. Often one can determine the extent of the peritonitis before opening the abdomen, and to treat it intelligently one should be familiar with the anatomy of the peritoneum and the character of the invading organism.

On opening the peritoneum one may encounter free fluid. This fluid may be offensive or defensive. If defensive, the transudate contains polymorphonuclear leucocytes and lymphocytes. The protective flakes seen in the fluid and the lymph seen scattered about the bowels contain endothelial cells. These cells are essential to the absorptive defensive integrity of the bowel. If disturbed, the lymph spaces beneath are opened up and permit overwhelming absorption. Hence, the least manipulation possible in frank cases of acute appendicitis accompanied by this fluid produces the best result for the patient. In these cases drainage may or may not be employed, but when we use drainage we feel better because it is difficult, indeed, to say at what time during the course of the disease this defensive transudate will become an offensive purulent material. Then, too, the wound will suppurate in practically all cases.

After removal of the appendix or the closure of a perforation drainage should be instituted in all cases of frank infection, particular attention being paid to the dependent portions of the abdomen, according to the case. No one can tell me this point is of no importance. In appendiceal cases, if the caput coli lies beneath the brim of the true pelvis, the culdesac should have first consideration. Further, it should not be overlooked in any case, else when the patient is doing well after operation a culdesac drainage through the bowel may become necessary. If the caput coli lies above the brim, drainage may be necessary as high as the duodenohepatic fossa. Place the drains in such a manner as to relieve the tension and keep it relieved. The less the tension, the less the absorption. The better the drainage the first 24 hours when the peritoneal cavity is full of pus, CONTAMINATED: Longest, 62 days. Shortest, 6 hours. Average, 13 days plus.

TEMPERATURE: Highest, 103.6. Lowest, 96.4. Average, 99.6.

PULSE: Highest, 144. Lowest, 56. Average, 90.

RESPIRATION: Highest, 50. Lowest, 16. Average, 22.

Complications:

Bronchitis, 7; pyelitis, 7; pneumonia, 4; pleurisy, 3; parotitis: bilateral, 3, unilateral, 2; cystitis (left), 2; phlebitis (left), 2; coryza, 1; pregnancy, 1; nephritis, 1; fecal fistula, 1; wound sepsis, 1.

Reentries:

Ventral postoperative hernia, 2; intestinal obstruction, 2; pericecal abscess, 2; impacted feces, 1; diverticulitis of sigmoid, 1.

Oversights:

No record referred to familial tendencies or constipation. Diarrhea was referred to in 12 cases, cathartics in 47 cases, enemata in none.

Deaths:

TOTAL NUMBER: 25.

PRIMARY CAUSE: All cases, acute appendicitis. Complications: Diffuse Peritonitis, 23 cases; hyperthyroidism, 2 cases.

SECONDARY CAUSE: Diffuse peritonitis, 9 cases; septicemia, 6; pneumonia, 4; embolism, 3; hyperthyroidism, 2; secondary hemorrhage, 1.

Recapitulation:

NO. OF CASES: 500.

NO. OF DEATHS: 25.

AGE: Youngest, 3 weeks. Eldest, 52 years. Average, 26 plus.

SEX: Male, 17. Female, 8.

DIAGNOSIS: Clinical and pathological agreed in all cases. Acute: Grade 4.

DURATION: Shortest, 1 day. Longest, 7 days. Average, 4 days plus.

PAIN: Diffuse, 17. McBurney, 4. Epigastric, 4.

NAUSEA: 21.

VOMITING: 20.

PREVIOUS ATTACKS: First in 22. Second in 2. Fourth in 1.

CATHARTICS: 10. Not stated in 15.

URINE: Pus, 11. Blood, 1. Albumen, 10. Casts, 7.

BLOOD: W.B.C.: Highest, 22,500. Lowest, 9,600. Average, 14,750.

OPERATION: Buttonhole, 13. Gridiron, 6. Incision and drainage, 6.

DRAINAGE: All cases.

PATHOLOGY: Gangrene, 23; perforation, 13; suppuration, 25; abscess, 10; perforation, caput cecum, 1; peritonitis: diffuse, 25, local, none; pus, 22; fluid, 3.

TEMPERATURE: Highest, 103. Lowest, 96.6. Average, 99.8.

PULSE: Highest, 144. Lowest, 58. Average, 100 plus.

RESPIRATION: Highest, 50. Lowest, 18. Average, 24.

STAY IN HOSPITAL: Longest, 52 days. Shortest, 18 hours. Average, 8 days plus.

RESULTS: Answers to questionnaires in 68 chronic cases: relieved, 32; not relieved, 7; unclaimed, 12; unanswered, 17.

SUMMARY

The United States leads all other countries in deaths from appendicitis. The disease takes 20,000 people annually and is the cause of one death every 26 minutes. If prompt and proper treatment is given, the mortality should not exceed one in every 240 cases. There are two kinds: appendicitis of the walls and appendicitis of the lumen of the appendix, or appendicosis. The latter may be responsible for the development of the former. Chronic appendicitis should be limited to certain cases of appendicitis of the wall. Chronic appendicitis and appendicosis may or may not be surgical. Acute appendicitis is considered surgical beyond question. Means of differentiating between appendicitis and other diseases which may simulate it are given. The author's technic of operation is described. An analysis of 500 cases treated at St. Vincent's Infirmary, Little Rock, is presented, in which there were 25 deaths.

RÉSUMÉ

l'Appendicite: sa différenciation

Les décès dus à l'appendicite sont plus nombreux aux Etats-Unis qu'ailleurs. La mortalité annuelle est de vingt mille. Il y a un décès dû à l'appendicite chaque

the result of too much fluid parenterally, mistaken for a failing heart Watching the blood chemistry is very helpful and will keep us out of a lot of trouble

THE RISING MORTALITY

The younger surgeons of today, with four years each in college and medical school and two to five years in the hospital, have little regard for the old man with experience They feel their judgment is as good, or probably better (and it may be in some cases) than his The public joins the younger surgeon in this idea, too He is more modern, better trained! Yet is there anything that will take the place of experience (if one is capable of benefiting by it)?

Ill advised operation undoubtedly increases the risk

Duration of the disease has nothing to do with "the time to operate" Symptoms may be mechanical As long as the inflammatory process is limited to the appendix, we may operate any time with impunity and with the expectation of the irreducible minimum mortality, which accompanies all operations

Furthermore, it is safe to operate as long as the inflammatory reaction is limited to the walls of the appendix and the peritoneum in the immediate vicinity thereof

But when the appendix has ruptured and is accompanied by a spreading peritonitis, characterized by evidence of diffuse infection (high temperature and pulse rate, distension, dehydration), it is better to treat the patient expectantly — that is, withhold food and drink by mouth and in the early stages by rectum — giving supportive measures by vein (hypodermoclysis and medication hypodermically) Permit abscess formation, after abscess formation, permit resolution, unless pulse, temperature, and general conditions become alarming, in which case, drain Use the smallest possible gridiron type of incision with a minimum amount of trauma

In a series of 500 consecutive cases of appendicitis without concomitant disease reviewed recently by my associate, Dr C C Reed, Jr, and myself, we made the following observations

These patients were all treated at St Vincent's Infirmary, Little Rock

Hospital Admissions (By years)		*Personal Admissions*	*Appendectomies*	*Deaths*
1926	3152	646	44	2
1927	3695	756	93	1
1928	3586	725	85	4
1929	3911	804	90	4
1930	3514	734	86	5
1931	3657	608	62	6
1932	3267	645	50	3

Our cases were analyzed as follows

Incidence and Symptoms

DISTRIBUTION 500 consecutive cases 278 acute 154 subacute 68 chronic All surgical Male, 263 Female 237 Oldest, 67 years Youngest, 3 weeks Average, 26 years plus

DURATION OF ATTACK ON ADMISSION Acute Cases longest 21 days shortest 6 hours Subacute Cases longest 9 months, shortest, 12 hours Chronic Cases longest, 12 years shortest, 3 years

LOCATION OF PAIN Diffuse, 168 Epigastric or umbilical 107 McBurney's point 225

ONSET Nausea 360 Vomiting 235 Nausea and vomiting not mentioned in others

NUMBER OF ATTACKS First in 222 Second in 106 Third, in 113 Others, 60

URINE Pus 193 Blood 19 Albumen, 73 Casts, 42 Not examined in 18

WHITE COUNT Cases, 338 Highest, 36,000 Lowest, 4 000 Average, 11 950 Not done in 162

Operations

INCISION AND DRAINAGE Buttonhole 336 McBurney gridiron, 110 Incision and drainage 24 Drains used in 175

PATHOLOGY Suppuration 225 Gangrene, 137 Perforation, 78 Fluid 79 Pus 106 Abscess, 37

PERITONITIS Diffuse 242 localized, 113 Acute cases without peritoneal involvement, 77

WOUND INFECTION In the 77 acute and 68 chronic cases there were 6

Stay in Hospital

CLEAN CASES Longe[illegible]st, 4 days Average 8 days pendicite cronica si dovrebbe limitare a certi casi dell'appendicite della parete. L'appendicite cronica e l'infiammazione del canale appendicolare possono essere o non possono essere chirurgiche. L'appendicite acuta è considerata chirurgica oltre ogni dubbio. I mezzi di differenziare fra l'appendicite e le altre infermità le quali possono stimolarla sono dati. Il tecnico dell'operazione dell'autore è descritto. Un'analisi di cinquecento casi trattati all'Infermeria di San Vincenzo, Little Rock, è presentata, nella quale ci furono venticinque morti.

VISIT THE EXHIBITS AT NATIONAL ASSEMBLY

Phospho-Soda (Fleet)

Phospho-Soda (Fleet), to be on exhibit at Booth No. 16, is a highly concentrated and purified, aqueous solution of sodium phosphates. It is non-toxic, rapid but mild in action without irritation of the gastric or intestinal mucosa. Indicated for hepatic dysfunction, and for its thorough eliminating and cleansing action on the upper and lower gut.

DePuy Manufacturing Company

The DePuy Manufacturing Company invites you to visit Booth No. 11. The new Littig Nail Guide, which permits accurate driving of a Smith-Petersen solid Nail, will be on display. They will also show the new Wire Clamp for holding transverse fractures of the heads of the tibia, the new five chuck Drill for inserting Drills, Pins and Wires in traumatic surgery, Vitallium Bone Plates and Screws and 18-8 non-magnetic Nails for treating hip fractures. A complete line of bone appliances will be on display for your inspection.

J. B. Lippincott Company

Among the featured LIPPINCOTT publications on display will be the phenomenally successful Thorek's "Modern Surgical Technic" and the new book on "Shock—Blood Studies as a Guide to Therapy" by Scudder. Dickson and Diveley's "Functional Disorders of the Foot" is still meeting with wide acclaim as is the third and latest volume of Kirschner's "Operative Surgery" on "Ear, Air Passages and Neck" translated by Ravdin and Coates.

Comper Manufacturing Company

The Albee-Comper Fracture Table incorporating new methods of Posturing and of applying Traction to both upper and lower extremities will be demonstrated at Booth No. 26. Unusual facilities for control of patient in comprehensive orthopedic postures under traction, and unprecedented advantages for X-Ray examination and check are provided on this unique Fracture Table. The Comper Invalid Walker, Weinberger Hand-Traction, Golden Localizer for Hip Fixation will also be on exhibit.

Bell & Howell

Bell & Howell Company will display the Turret type 70-DA camera in booths 1 and 2. This camera, which permits quick easy switching of its three lenses, has been a leading instrument for years in the taking of medical motion pictures. All accessories for taking a fine picture will be included in the display. Silent and sound projectors, of the very latest type, will be demonstrated. Noteworthy among these will be the 'Filmomaster' silent projector, a quiet running all-gear driven 16 mm. machine. In addition to giving equipment information, booth attendants will be glad to inform visitors regarding all the various medical film sources.

Heidbrink Kinetometers

In Space 18 will be found a complete display of the well known Heidbrink Kinetometers, Airators, Tents, and other therapy equipment, as well as the Ohio Oropharyngeal Catheter Outfit.

vingt-six minutes L'operation precoce et pratique selon les regles ne devrait donner qu'un deces pour 240 cas Il y a deux types l'appendicite interessant les parois de l'organe et l'appendicite interessant la lumiere de l'organe Cette dernière forme en se propageant a la paroi peut nous donner la deuxieme forme Pour l'appendicite aigue, le traitement opératoire s'empose Il y a des cas d'appendicite chronique qui ne reclament pas un traitement operatoire L'auteur discute le diagnostic differentiel car il y a des processus pathologiques qui simulent l'appendicite L'auteur decrit sa technique Il analyse cinq cents cas soignes a l'Infirmerie de St Vincent, Little Rock, Ark Ces cas donnerent vingt cinq déces

ZUSAMMENFASSUNG

Differentialdiagnose der Blinddarmentzundung

Die Sterblichkeit bei der Appendicitis ist in U S A grosser als in allen anderen Staaten Von dieser Krankheit werden jahrlich 20,000 Personen befallen und sie verursacht einen Todesfall alle 26 Minuten Bei schneller und richtiger Behandlung sollte die Sterblichkeit nicht uber einen Tod in 240 Fallen hinausgehen Es gibt zwei Arten eine Appendicitis der Blinddarmwand und eine Entzundung des Lumens, die auch Appendikosis genannt wird Das letztere Stadium ist vieleicht fur die Entwicklung des ersteren verantwortlich Der Ausdruck „chronische Appendicitis" sollte auf bestimmte Falle, bei denen eine Entzundung der Blinddarmwand vorliegt, beschrankt werden Chronische Appendicitis und Appendikosis, konnen, aber mussen nicht chirurgisch sein Es steht ausser Frage, dass eine acute Blinddarmentzundung immer vom chirurgischen Gesichtspunkt aus betrachtet werden muss Es werden verschiedene Methoden angegeben um eine Differentialdiagnose zwischen Appendicitis und anderen ahnlichen Krankheitszustanden machen zu konnen Die Operationstechnik des Verfassers wird beschrieben Die 500 im St Vincent Infirmary, Little Rock, behandelten Falle werden analysiert, unter denen 25 Todesfalle vorkamen

SUMARIO

Apendicitis Sus Diferenciaciones en Tratamiento

Los Estados Unidos estan a la cabeza de todos los otros paises en muertes por apendicitis La enfermedad toma 20,000 personas anualmente y es la causa de una muerte cada 26 minutos Si el tratamiento es dado prontamente y en la manera propia, la mortalidad no debe de exeder a uno en cada 240 casos Hay dos clases apendicitis de la pared y apendicitis de la cavidad apendicular, o apendicosis La ultima puede ser responsable por el desarrollo de la primera Apendicitis cronica deben de ser limitadas a ciertos casos de apendicitis de la pared Apendicitis aguda es considerada, sin duda alguna, quirurgica Medios para diferenciar entre apendicitis y otras enfermedades que puedan simularla son dados La tecnica de el autor para la operacion es indicada Un analisis de 500 casos tratados en la Enfermeria de San Vicente, Little Rock, es presentado, en el cual hubieron 25 muertes

RIASSUNTO

L'Appendicite La sua differenza e la sua cura

Gli Stati Uniti precedono tutti gli altri paesi nei morti dall'appendicite L'infermita prende ventimila persone annualmente ed è la causa d'una morte ogni ventisei minuti Se si da pronta ed adatta cura, la mortalita non eccederebbe uno in ogni duecentoquaranta casi Ci sono due specie L'appendicite delle pareti e l'infiammazione del ' ai pendicolare Questa puo' sabile per lo sviluppo di ’

and rigidity with a mass in the right hypochondriac region, accompanied by high fever and rapid pulse.

There is absolutely no danger in waiting for a gallbladder to "cool off." The important requisite, however, is that the patient be hospitalized. He should receive absolutely nothing by mouth. All nourishment should be given parenterally. Then practically every inflamed gallbladder will subside within 12 to 24 hours. The tenderness over the right hypochondriac region subsides, the mass is reduced, the pulse and temperature return to normal. Under this treatment perforation need not be feared at all because in only one instance in my experience has a perforation occurred during the waiting period. Even in this case the symptoms were allowed to subside and operation was not performed until five or six days following the admission of the patient to the hospital. It was not known that perforation had occurred until the time of operation because the gallbladder was adherent to the parietal peritoneum. Our experience with acute perforation of the gallbladder includes the history of one other patient. In this case an immediate operation was performed and the patient recovered because the signs and symptoms of the rupture with general peritonitis were recognized. The pathologic anastomoses of the gallbladder to the stomach and duodenum seen at operation are evidence that perforations to contiguous organs occur fairly frequently, but rarely cause diffuse peritonitis.

As a result of emergency operations for acute empyema of the gallbladder, the morbidity and mortality will be greater. By emergency is meant an operation that is performed within an hour or two after the patient's admission to the hospital. One prominent surgeon reported a mortality of 50 per cent following cholecystectomy for acute empyema of the gallbladder. He has now modified his procedure by performing cholecystostmies only in acute cases. As a result of the liver damage encountered in acute cases, it is obvious that deaths following cholecystectomy will increase. Sufficient time should always be allowed for the estimation of the blood chemistry, the administration of glucose, blood transfusions when necessary, and the ultimate subsidence of symptoms as gauged by palpation of the abdomen. Again, many patients operated on in the acute stage must undergo two operations: a cholecystostomy, followed in about four to six weeks by a cholecystectomy. Convalescence following the second operation is usually a stormy one.

CHOLECYSTECTOMY VS. CHOLECYSTOSTOMY

As a surgical procedure the superiority of cholecystectomy over cholecystostomy was acknowledged many years ago. The pioneers in this type of work believed that cholecystostomy had a lower mortality than cholecystectomy. The actual experience of surgeons showed that this was an erroneous conclusion. At the present time there is a mild enthusiasm again for the return of the operation of cholecystostomy. This may be due partly to the fact that many surgeons are advocating operations upon acute empyema of the gallbladder as an emergency measure.

There is a very limited field for the operation of cholecystostomy. It may be performed on patients who are very bad risks, in the aged, in acute conditions of the gallbladder, in acute pancreatitis, and chronic cholecystitis without stones. Cholecystostomy may also be done in those patients in whom a diagnosis of high-lying acute appendicitis has been made, but in whom instead an acute empyema of the gallbladder has been found at operation.

CHOLECYSTECTOMY IN JAUNDICE

Before we were aware of the thera-

THE INDICATIONS AND CHOICE OF SURGICAL PROCEDURES IN GALLBLADDER DISEASE

WITH A DISCUSSION OF CONTROVERSIAL POINTS*

From the Services of the Jewish and Mount Sinai Hospitals

MOSES BEHREND, M.D., F.A.C.S., F.I.C.S.
PHILADELPHIA

THE topics to be considered in this paper are the transverse or subcostal incision versus the longitudinal incision, immediate or delayed operation for acute inflammation of the gallbladder, cholecystectomy versus cholecystostomy, drainage versus no drainage following cholecystectomy, cholecystectomy in the presence of jaundice, cholecystectomy from above or below the liver border, reasons for opening the common duct, T tube versus straight tube for drainage of the common duct and the best anesthetic to use for upper abdominal operations

TRANSVERSE VS LONGITUDINAL INCISION

I cannot speak from personal experience concerning the advantages of the transverse or subcostal incision. It is claimed that the upper abdominal contents can be more easily explored and operated upon through the transverse incision, and that incisional hernia develops less frequently following this technic. One disadvantage is that the appendix cannot always be reached through this incision. It would be necessary, therefore, to make an additional incision if an appendectomy is contemplated. The technical procedures performed through the transverse incision can be accomplished just as well through a vertical incision. When a vertical incision is used in women patients, it is always possible to remove the appendix and examine the genital organs. An additional incision may be necessary occasionally in men to perform an appendectomy. Incisional hernia has occurred less frequently following the vertical incision since spinal anesthesia has been used.

For the past ten or twelve years, during which spinal anesthesia has become the method of choice in all upper abdominal operations, I have changed the location of my vertical incisions. Formerly it was customary to start the incision in the epigastric region, but in using spinal anesthesia the epigastric region was not always anesthetized. It is now my custom to incise the abdomen in a vertical direction directly over the location of the gallbladder, which is approximately at the right border of the rectus muscle.

IMMEDIATE OR DELAYED OPERATION

Controversy has permeated the profession for some time as to whether it is better to operate upon a "hot gallbladder" or to wait until it has "cooled off" before performing cholecystectomy. Much depends on whether "acute cholecystitis" is a clinical or a laboratory diagnosis. This causes confusion because the laboratory diagnosis of "acute" inflammation of the gallbladder may have been made after the subsidence of the attack; operation can therefore be performed with safety. But a gallbladder that is clinically acute gives, very definite signs of marked tenderness portance is the selection of the proper size of T tube, commensurate with the caliber of the duct; the ease with which the tube may be introduced depends on this relationship. The question, "How long should the T tube remain?" has often been asked. In patients in whom there is a tendency for stones to reform in the common duct the tube should remain for six months or more. While we do not feel that the continued presence of the T tube in the duct will prevent the formation of stones, it will, however, by daily washings with salt solution, prevent the accumulation of bile sand and mud which may eventually form a definite obstruction. In other cases where we have proved by means of a choledochogram that the ampulla of Vater is patulous, it may be necessary to leave the tube only about two weeks. When a stone has been left in the common duct and we wish to apply the treatment recommended by Walters, which is to dissolve the stones, the presence of the T tube is the only method by means of which this measure can be carried out. The treatment consists in the administration of nitroglycerin and the injection of ether to dissolve the stones. With us this treatment has not been successful. As intimated above, the T tube should never be removed until a choledochogram has been used to prove that bile passes into the duodenum.

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*Read before the Section on General and Industrial Surgery, Philadelphia County Medical Society, December 11, 1939

The T tube is of special benefit in cases of chronic pancreatitis where no stones are found in the gallbladder or ducts, when external drainage may be used for six months or more beneficially. Internal drainage by some form of anastomosis of the bile passageways to the stomach or duodenum is a preferable method for some of these cases.

A straight tube for drainage of the incised common duct is not as universally efficient as the T tube, as it is apt to slip, whereas a T tube will remain indefinitely, rarely being displaced of its own accord. The T tube may remain six months or more in patients with chronic pancreatitis and in those in whom stones recur frequently in the common duct. By far, then, the use of the T tube is the best method of draining the common duct.

CHOICE OF ANESTHETIC

Every known anesthetic has been used in operations upon the bile passageways. The finest judgment in the selection of the proper anesthetic in operations upon the diseased bile passageways must be employed. While we do not know the cause of liver deaths, the anesthetic may be instrumental in bringing about some of these fatalities. It has been shown that in all types of inhalent anesthetics, considerable liver damage in the form of necrosis may result. Since the use of spinal anesthesia, which is probably the least harmful of all anesthetics, the number of liver deaths has been materially reduced. While liver necrosis may result following any form of anesthetic, spinal anesthesia is responsible for very few. It is the safest that one can use in all abdominal operations, especially in those performed in the upper abdomen. In addition to the resultant ease with which one can operate because of relaxation, it conserves liver cells. The real danger of spinal anesthesia is the sudden and maintained drop in blood pressure which must always be guarded against to prevent anoxemia. The main factors to prevent the drop in blood pressure are a prophylactic dose of neosynephrin or like products and intravenous injection of five per cent glucose at the time of operation and, if necessary, a repeated dose of the above drug during the operation.

CONCLUSIONS AND SUMMARY

1. There is no advantage in the use of transverse over the vertical incision.

peutic value of vitamin K and bile salts cholecystectomy in the presence of jaundice was a dangerous procedure Many patients died as a result of the uncontrollable oozing which followed stripping of the gallbladder from the liver It is now safe to perform a cholecystectomy during the course of an operation on the common duct provided the thrombogenic time has first been estimated and the proper dose of vitamin K and bile salts has been administered

To all jaundiced patients vitamin K and bile salts should be given four days before operation and continued for at least a week after operation

METHOD OF APPROACH

While the gallbladder may be removed from above, the preferable method is the one that attacks the blood supply first It then becomes an anatomic operation because after the right free border of the gastrohepatic omentum is opened, the ducts and the blood vessels are reached at their origin When the gallbladder is removed from above downwards, the field of operation is covered with blood as a result of its separation from the liver The oozing of blood from the liver surface is always annoying and prevents proper visualization of the structures

DRAINAGE AFTER CHOLECYSTECTOMY

For many years I advocated drainage of the gallbladder fossa following cholecystectomy For the past 10 or 12 years exactly the reverse has been my rule It is now the exception to drain, but the field of operation must be free of blood and bile during the operation Should leakage accidently occur during the removal of the gallbladder, the area must be drained Convalescence without drainage is smoother than in those in whom the operative site has been drained It has been necessary in three patients to reopen the abdomen and insert a drain One patient required a posterior colpotomy, the only one who died from bile peritonitis following the "no drainage" technic

The occurrence of subhepatic or subphrenic collections has been less following the "no drainage" technic In clean cases when patients were drained a secondary infection sometimes developed This lead in several cases to the formation of a subphrenic abscess

EXPLORATION OF COMMON DUCT

The indications for the exploration of the common duct during the operation of cholecystectomy are a previous history of jaundice, a dilated thick walled common duct, and one in which stones can be felt Stones were present in 12 to 19 per cent of the patients who had cholecystectomy done It must be distinctly understood that in every case in which the common duct is opened there is additional danger both as to morbidity and mortality After the duct is incised and the various instruments for the removal of the stones have been utilized, the duct should always be syringed under pressure in order that adherent sand and stones may be removed from the common and hepatic ducts Special attention must be given those stones that are embedded in the ampulla of Vater Since it is impossible to remove them through an incision in the common duct, a transduodenal operation must be performed A choledochogram done at the time of such operation is important, but the operating room must be properly equipped to carry out this plan After the operation another choledochogram is taken in order to determine whether the common duct is patulous and free of stones

T TUBE VS STRAIGHT TUBE

Nothing introduced in [illegible] y of common duct is more [illegible] method of drainage [illegible] t tube following operat[illegible] ture For this purp[illegible] es

mia; el drenage no es necesario, colecistectomia en la presencia de ictericia no tiene peligro ahora, siempre que vitamina K y sales biliares sea administrada antes y despues de la operación. La operación debe de ser hecha de abajo. El conducto comun debe de ser explorado si está dilatado y si una historia previa de ictericia ha sido obtenida y si piedras estan presentes. El tubo T es muy necesario en cirugia del conducto comun. Anestesia espinal es la mejor de todas las anestesias en cirugia de la parte superior del abdomen.

RIASSUNTO

Indicazioni e scelta di procedimenti chirurgici nella malattia della cistifellea chirurgici

Dopo la presentazione di tutti e due i lati del soggetto, le conclusioni raggiunte sono che l'incizione trasversale è preferibile alla incizione verticale; un' operazione di emergenza non si deve mai fare per acuta empiema della cistifellea; la colecistectomia è superiore alla colecistostomia; il prosciugamento non è necessario; la colecistectomia nella presenza della itterizia è adesso un'operazione sicura purchè si diano Vitamine K ed i sali di bile prima e dopo l'operazione. L'operazione deve essere fatta in giu. Il canale commune si deve esaminare a fondo se è dilatato, o se una storia precedente di itterizia si è ottenuta, e se si trovanocalcoli biliari. Il vaso conduttore T è un' aggiunto necessario nella chirurgia del canale commune. L'anestesia spinale e il più sicuro di tutti gli anestetici nella chirurgia dell'addome superiore.

* * *

The Committee on Scientific Research of the American Medical Association has awarded a grant to **Dr. Charles O. Warren, Jr**, instructor in physiology at Cornell University Medical College, for the continuation of studies on the metabolisms of bone marrow. The Committee has also renewed the grant of last year to **Dr. Joseph H. Roe,** professor of biochemistry in the School of Medicine of the George Washington University, in support of the continuance of his work on methods for the determination of ascorbic acid and of a study of the effect of vitamin C upon gastric function

Dr W. H. Taliaferro of the University of Chicago delivered the fourth Charles Franklin Craig lecture on tropical medicine at the thirty-fifth annual meeting of the American Society of Tropical Medicine held in Memphis, Tenn., from November 21 to 24 "The Mechanism of Acquired Immunity to Metazoal Parasites" was the subject of Dr Taliaferro's lecture. **Dr. Richard P. Strong** presented the Walter Reed Medal to **Dr William B. Castle,** of Harvard University **Dr Alfred C. Reed** delivered his presidential address on "The Future of Tropical Medicine" at the annual luncheon on November 23. A joint session was held November 23 with the National Malaria Committee

NATIONAL ASSEMBLY

THE NATIONAL ASSEMBLY OF THE UNITED STATES CHAPTER OF THE INTERNATIONAL COLLEGE OF SURGEONS WILL BE HELD ON FEB. 11 TO 14, 1940, AT VENICE, FLORIDA, UNDER THE DIRECTION OF DR. FRED H. ALBEE, INTERNATIONAL PRESIDENT ELECT, AND THE PRESIDENCY OF DR. FREDERICK M. DOUGLASS, PRESIDENT OF THE UNITED STATES CHAPTER AND CHAIRMAN OF THE PROGRAM COMMITTEE.

A better examination of the abdomen can be made with the latter method

2 An emergency operation should never be performed in acute empyema of the gallbladder [illegible] is always an opportune time at a later date when a cholecystectomy could be performed

3 There do[illegible] seem to be any justification for the preference of cholecystostomy in[illegible] as a cholecystectomy has been proved for many years past the superior operation

4 Provided one is sure of the technic, drainage after cholecystectomy is unnecessary

5 Cholecystectomy in the presence of jaundice is now a safe operation provided vitamin K and bile salts are administered before and after operation

6 Cholecystectomy should always be performed from below

7 The common duct should always be explored if dilated, if a previous history of jaundice has been obtained and if stones are present

8 The T tube is a necessary adjunct in the performance of surgery of the common duct The straight tube has a limited application only

9 Spinal anesthesia is the safest of all anesthetics in upper abdominal surgery

RÉSUMÉ

Indications et choix de procédures opératoires dans les maladies de la vésicule biliaire

Apres avoir presente les opinions contraires sur la question l auteur affirme que l'incision transverse est preferable a l'incision verticale, la cholecystectomie est préférable a la cholecystostomie, le drainage n est pas necessaire Même dans les cas où il y a jaunisse, la cholécystectomie n est pas une operation dangereuse si on administre au malade avant et apres l'acte opératoire des vitamines et des sels biliaires Si le cholédoque est dilaté il faut l'explorer On explore à ce conduit aussi si le malade a eu des attaques précedentes des jaunisse, si des calculs sont presents Le tube en T est un accessoire utile dans la chirurgie du choledoque L'anesthésie rachidienne offre le plus de securité, pour les interventions de la cavité abdominale supérieure

ZUSAMMENFASSUNG

Indication und Wahl der Gallenblasenoperationen

Der Verfasser kommt, nachdem er die verschiedenen Gesichtspunkte erortert hat, zum Schluss, dass die Querincision der vertikalen vorzuziehen ist Eine sofortige Operation soll nicht vorgenommen werden, wenn ein akutes Empyem vorliegt Cholecystektomie ist vorteilhafter als Cholecystostomie Drainage ist nicht notwendig Cholecystektomie in Gegenwart von Ikterus ist zu einer ungefahrlichen Operation geworden, vorausgesetzt, dass Vitamin „K" und Gallensalze vor und nach der Operation verabreicht werden Die Operation sollte von unten vorgenommen werden Der Ductus Choledochus muss untersucht werden, wenn es erweitert ist, wenn Steine vorhanden sind, oder wenn der Patient fruher Ikterus hatte Ein ‚T" Drain ist ein notwendiges Utensil fur Operationen am Ductus Choledochus Spinale Anaestesie ist fur alle Oberbauch Operationen die sicherste Narkoseart

SUMARIO

Indicaciones y procederes quirurgicos a escoger en las enfermedades de la vesícula biliar

Las concluciones a que se llegaron despues de la presentacion de ambos lados de la discución es de que las incisiones transversales son preferidas á la vertical, una operación de emergencia nunca debe de ser hecha por [illegible] empiema agudo de la vesícula [illegible] cistectomia es superior á la [illegible]

Surgery has not yet justified its intervention. A study of the literature shows a ten per cent mortality for the average clinic and time required for doing the required cholecystectomy. The time from the tenth to the twentieth day after onset has the highest mortality for a cholecystectomy. Table 2 reports 384 cases which were operated upon within 48 hours of onset with a mortality of only 2.6 per cent.

PATHOLOGY

The study of the pathology disclosed by operation upon the living has done so much to clarify our understanding of intra-abdominal disease that the operative findings and the gross appearances in my 76 cases may be worth presenting. A study of the specimens has led me to classify them into two groups, namely: (1) the uncomplicated, of which there were 37; and (2) the complicated, of which there were 39.

1. *Uncomplicated Cases.* Laparotomy reveals a gall sac about twice the normal size, of purplish pink color; the peritoneal covering still retains its luster. It is tensely distended, often covered by a few frail omental adhesions. Its contents are slightly bile stained, seromucous, often slightly purulent. In 35 of the 37, the cystic duct was obstructed by a large stone impacted in Hartmann's pouch or a smaller stone impacted in the mouth of the duct. In the majority, a large stone was the cause of the obstruction. The gross specimen shows walls from 0.5 to 1 cm. in thickness, more like an edema than an inflammatory swelling. The mucosa sometimes shows necrotic patches, is soft, and is easily rubbed off from the underlying fibrous coat. The operative findings in this group are found in operations done early, rarely after the first week.

What can the healing power of Nature do with such gall bladders? Stones are present in more than 90 per cent. The best that natural power can do is to leave a fibrous sac containing stones. Recurrent attacks are the most frequent sequel of relief from medical treatment.

2. *Complicated Cases.* There were 39 in this group. Stones were present in 37. A perforation was found in 7 with extravasation of pus and stones into a pocket. These pericholecystic abscesses were effectively circumscribed; as bile no longer enters such a gall bladder, the danger of infection spreading from such an abscess is extremely slight. Gangrenous areas are found in 25 per cent of these gall sacs. In these cases, the gall sac is covered by dense adhesions, making the operation for its removal much more difficult than in group one. This is the type of morbid anatomy found after the first week and is plainly incurable by *vis medicatrix naturae.* Fistula into the duodenum or colon is not uncommon. Removal of the gall bladder is essential for cure. Without removal, an empyema of the gall sac is the best result that can be expected. This, along with the dense adhesions impairing the functions of the stomach, leaves the patient with a persistent intractable dyspepsia.

TREATMENT

The favorable experience with partial resection of the gall sac leads me to regard it as the operation of choice in all acute cases in which anything more than simple drainage is considered safe. The technic I have followed is as follows.

The tensely distended sac is emptied by aspiration, opened, the stones removed, and its cavity swabbed out with iodine. An iodine pack is left in the sac, while the cystic duct and artery are exposed and tied. The sac is then excised, either from above downward or from below upward, leaving the portion attached to the liver undisturbed. From this portion the softened mucosa is easily removed by rubbing with gauze, preferably saturated with iodine. In these acute cases the gall sac is easily pulled off its bed in the liver by traction, and so too much force by the assistant in elevating the gall sac must be avoided. In one case in which the

ACUTE CHOLECYSTITIS

JAMES McKENTY MD FRCS (Canada), FACS

WINNIPEG CANADA

SURGICAL literature during the past ten years has been crowded with articles on acute cholecystitis These articles show that there is a wide diversity of opinion concerning treatment Nearly all practitioners agree that in about ninety per cent of cases, an operation for removal of the gall sac will sooner or later become necessary for complete cure When the operation should be performed is the point in dispute

The old practitioners will be reminded of a similar controversy during the last decade of the nineteenth century on the question whether early operation or interval operation yielded the better results in acute appendicitis

In 1895, Sahli[1] then chief of the Medical Clinic at Berne Switzerland published the result of his investigation into the mortality of the medical treatment of acute appendicitis In that report he wrote I received replies from a total of 466 physicians The material covered by the answers consists of 7 213 cases of perityphlitis 6 740 treated by non-operative measures yielded 591 fatalities — 8 8 mortality Inasmuch as several surgeons in Europe and on this Continent reported, before the end of the nineteenth century a mortality of three per cent or less for early operation, Sahli, by establishing the mortality of medical treatment contributed greatly to the solution of the problem of acute appendicitis

MORTALITY

The mortality of acute cholecystitis under medical treatment, is not given in any modern textbook on either medicine or surgery, it is, therefore, evidently unknown Recent literature has presented some data which I have collected in Table I, which shows a mortality of 35 in 645 cases (5 4 per cent); this is too small a number to justify a conclusion

TABLE 1

MORTALITY UNDER MEDICAL TREATMENT

	Total	*Improved*	*Unchanged*	*Worse*	*Died*
McNeil Love[2]	69	60	0	9	0
M M Zenninger[3]	54	20	19	15	0
S H Mentzer	63	0	0	0	14
G H Pratt	45	0	45	0	0
M K Smith[4]	94	0	0	0	0
Nils Liedberg[5]	244	192	0	0	0
Local Hospitals	76	69	5	0	19
					2
	645	341	69	24	35

128 in which medical treatment failed

It should be noted that 69 were unimproved, and 24 became worse, totaling 128, about 20 per cent in which medical treatment failed We know that about 60 per cent of those relieved by medical treatment have recurrent attacks, which means failure to cure by medical treatment

TABLE 2

THE MORTALITY OF OPERATION WITHIN 48 HOURS OF ONSET

	Cases	*Deaths*
H I Graham	164	6
M M Zenninger	12	0
G H Pratt	23	0
G J Heuer	112	2
Kunath	6	0
Author	16	0
Graham & Hoelle[6]	333	8
	51	2
	384	10 (2 6%)

Die Operationstechnik wird ebenfalls beschrieben.

3. Partielle Cholecystekomie wurde in 31 der 76 Fälle vorgenommen, wobei 1 Todesfall eintrat.

SUMARIO

Colecistitis aguda

(1) El autor concluye que mas información con respecto a colecistitis aguda es requerida, especialmente con respecto al tratamiento médico. Los datos presentados aquí muestran que el tratamiento médico fracasa en el 20% de todos los casos.

(2) La anatomía mórvida muestra que operando en los 76 casos del autor, la tecnica por la cual es decrita, fuertemente soporta la creencia que tales casos no son curables por tratamiento médico.

(3) Colecistectomia parcial fué hecha en 31 de sus 76 casos, con una fatalidad.

RIASSUNTO

Colesistite Acuta

(1) L'autore conclude che bisogna avere più informazione in quanto a colesistite acuta, specialmente riguardante la cura medicinale. La data qui' presentata mostra che la cura medicinale non riesce in circa venti per cento di tutti i casi.

(2) L'anatomia morbosa rivelata dall'operazione nei settantasei casi dell'autore, il tecnico pel quale è descritto, appoggia fortemente l'idea che tali casi non sono curabili per cura medicinale.

(3) Colesistettomia parziale fu fatto in trentuno dei suoi settantasei casi, con una fatalità.

CLINICAL ORTHOPEDIC SOCIETY

Dr. H. Earle Conwell, of Birmingham, Ala., was elected president of the Clinical Orthopedic Society at the annual meeting of the society held October 13 and 14 at Oklahoma City, Okla., and Little Rock, Ark.

Dr. C. A. Stone, of St. Louis, was chosen vice-president and **Dr. M. O. Henry,** of Minneapolis, secretary-treasurer.

A clinical program was given in both cities under the supervision of the Oklahoma Clinical Orthopedic Society and the Arkansas Medical School.

The association, the largest of its type, is unique in that its work is entirely clinical.

MILWAUKEE SOCIETY OF CLINICAL SURGERY

A symposium on biliary surgery was held at the meeting of the Milwaukee Society of Clinical Surgery on November 28 at the University Club of Milwaukee.

Dinner, served at 6:30, was followed by the scientific program. **Dr. Armand J. Quick,** associate professor in the department of pharmacology, Marquette University School of Medicine, spoke on "Consideration of Prothrombin and Vitamin K in Surgery;" **Dr. W. J. Carson,** on "Surgery of the Biliary Tract;" and **Dr. Max Bornstein** discussed both papers.

Dr. Karl Schlaepfer is president and Dr. Edward O. Gertenbach is secretary of the Society.

FELLOWSHIP DUES, AS WELL AS DUES FOR MEMBERSHIP AND ASSOCIATE MEMBERSHIP, ARE PAYABLE NOW AND SHOULD BE SENT TO DR. BENJAMIN I. GOLDEN, DAVIS MEMORIAL HOSPITAL, ELKINS, W. VA.

sac was completely pulled [illegible] convalescence resulted [illegible] of the gall sac leaves a denuded [illegible] on the liver which, I believe [illegible] danger of toxemia, and to which [illegible] "liver death"

TABLE 3

CASES OPERATED UPON BY THE AUTHOR

No	*Operation*	*Deaths*
18	Cholecystostomy	0
31	Partial cholecystectomy	1
27	Complete cholecystectomy	4

All cases of acute cholecystitis excepting those complicating typhoid fever begin as a gall bladder colic About 90 per cent of such cases of colic subside before advancing to the inflammatory state of cholecystitis.

All colics persisting longer than 24 hours *without improvement should be* regarded as having an inflammatory basis. Therefore, I urge that the general practitioner should send such a patient into a hospital not later than 48 hours after onset. This is in accordance with Graham and Hoefle's[6] advice, and agrees with their advocacy of the education of the general practitioner on such matters. Ten years were required for such education in the matter of appendicitis forty years ago.

Table 2 shows a mortality in 384 cases operated upon within 48 hours of 2.6 per cent.

A study of the literature of reports of several thousands of cases shows that the delayed plan of treatment yields a mortality of 10 per cent

SUMMARY

(1) My discussion of this matter leads to the conclusion that more information is required, especially regarding the medical treatment. The data here presented shows that medical treatment fails in about 20 per cent of all cases.

(2) The morbid anatomy disclosed by operation in my 76 cases strongly supports the view that such cases are not curable by medical treatment

(3) Partial cholecystectomy was done in 31 of my 76 cases with one fatality

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RÉSUMÉ

Cholécystite aiguë

Nos connaissances de la cholécystite aigue sont insuffisantes. Le traitement médical échoue dans vingt pour cent de tous les cas.

L'auteur a examiné les pièces anatomiques dans soixante-seize cas qu'il a opérés. Il décrit sa technique opératoire. Il est convaincu que le traitement médical *ne guérit la cholécystite aiguë*.

Dans trente-et-un des 76 cas, il pratiqua une cholécystectomie partielle. Il n'eut aucun décès.

ZUSAMMENFASSUNG

Akute Gallenblasenentzündung

1. Der Verfasser kommt zu dem Schluss, dass mehr Information uber die akute Gallenblasenentzündung nötig ist, besonders in Hinblick auf die medizinische Behandlung. Die angefuhrte Statistik zeigt, dass die *medizinische* Behandlung in ungefähr 20% aller Fälle nicht zum Ziele fuhrt.

2. Die anatomischen Verhaltnisse, die bei den 76 vom Verfasser vorgenommenen Operationen, vorgefunden wurden, bestärken nachdrücklich die Ansicht, dass diese Falle durch medizinische Behandlung nicht geheilt werden konnen

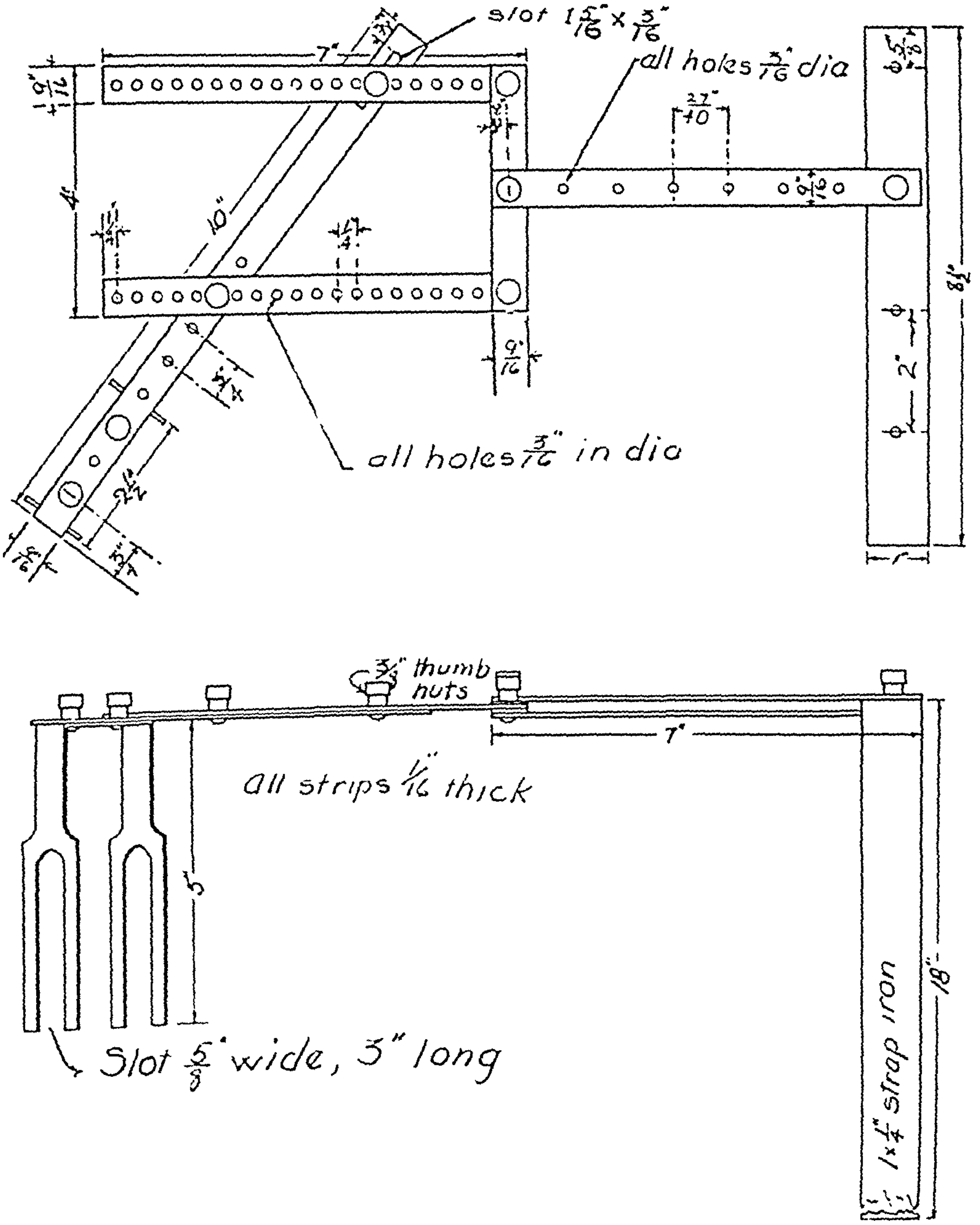

Fig. 1. Schematic drawings of Director. Above, U shaped arm with all parts assembled. Below, lateral
w showing inverted 'U' Director

ctor, one again finds all measurements
be correct without the necessity of
ecking with x-rays. Since the parallel
ms of the Director are four inches
art, the length of the nail, pins or bone
g can be determined, correct allow-
ce being made for x-ray distortion
ll these factors are established and

fixed beforehand. Thus if the roentgenologist will fasten the upright arm to the bare operating table, place the parallel bars in position and take a film, he can determine the amount of distortion between the parallel arms and the film, provided the height of the upright is known. This height will remain fixed

SIMPLIFIED APPLICATOR FOR LOCALIZATION OF THE ANGLE OF THE NECK AND SHAFT OF THE FEMUR

AND A DIRECTOR FOR GUIDANCE TO INTERNAL FIXATION

BENJ. I. GOLDEN, M.D., F.A.C.S., F.I.C.S.
From the Surgical Service, Golden Clinic
ELKINS, WEST VIRGINIA

ALL methods so far reviewed by the author for obtaining an accurate alignment for internal fixation of the fractured neck of the femur have depended on either direct application to the shaft of the femur or mathematical deductions from roentgenograms. The direct method involves time and the introduction of extra mechanical appliances into the wound. Since time is a definite factor in all surgery of the aged, and most fractured femurs fall in this group, every effort should be made to reduce it to a minimum. In bone surgery the least amount of trauma and manipulation predisposes to better results and minimizes the possibility of infection.

DESCRIPTION

The director herein described is easily applied, does not depend upon personal interpretation, and is fixed to the operating table, thus eliminating the possibility of slipping, failure to start from the proper fixed point or mathematical calculation. It is attached to the table by means of a piece of strap iron bent to form a right angle. This upright arm is fixed near the crest of the ileum. It does not interfere with the flexion of the thigh and thus permits the Dooley method of lateral x-raying. The U shaped arm is fastened to the angle portion of the fixed upright. It is then parallel to the leg and directly over the head and shaft of the femur.

USE

With the position of the heel marked so that it can always be replaced at the exact point, the foot is adducted twenty degrees. With the aid of an x-ray film, one can determine the correct angle for fixation by counting the correct number of holes on the internal limb of the director to the center of the head. The same procedure will give the correct hole on the lateral limb, to a point about one inch below the greater tuberosity. By placing the directional bar over the holes and fixing it, the corrected line of the angle of the neck on the shaft is definitely fixed. This film is exposed and developed while drapes are being placed and the incision made. Should it be desired, an inverted U channel can be attached which will permit the nail to be driven accurately through a fixed groove. If a motor drill is used for bone pegging, the U channel is left off and the angle maintained by keeping the fixed arm and drill in line by downward sighting.

The complete Director may be sterilized, and with the exception of an attachment to the operating table, it remains sterile without interfering with drapes or operative procedure. Should lateral films be desired, the parallel portion can be rapidly removed, the leg flexed and the picture taken. By returning the heel to the predetermined spot, correcting the internal angle of the foot, and replacing the parallel arm of the Di

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* Note: This Director has been approved by Dr. Fred H. Albee as an accessory on his new orthopedic table.

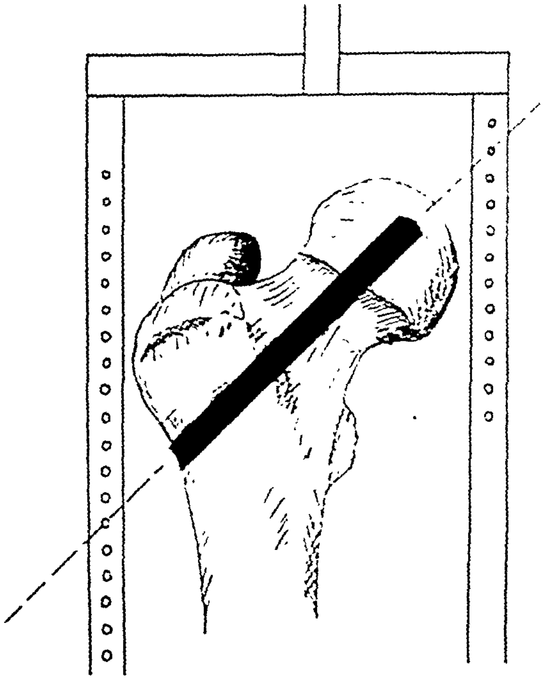


Fig. 5. Fixation splint in position. Director limb has been removed.

for all future pictures if the parallel bars are always placed at the same distance from the table top.

diaphyse. Le directeur a une position fixe par rapport au malade et à la table d'opération. Son emploi diminue la durée de l'operation et est applicable à tous les types de fixation. Sa longueur exacte peut être réglée. Son application et son fonctionnement n'augmente pas le traumatisme et ne dépend pas de l'interprétation personnelle.

ZUSAMMENFASSUNG

Vereinfachter Apparat zur Auffindung des Oberschenkelwinkels und eine Anleitung zur Führung der internen Fixation

Der Verfasser gibt eine Anleitung zur genauen Bestimmung des Winkels, den der Oberschenkelhals mit dem Schaft bildet. Das Instrument ist in einer fixierten Stellung zum Patienten und Operationstisch. Es verkürzt die Operationszeit und kann bei allen Fixationsmethoden angewendet werden. Seine genaue Länge kann ganz exakt eingestellt werden. Seine Anwendung und Funk-

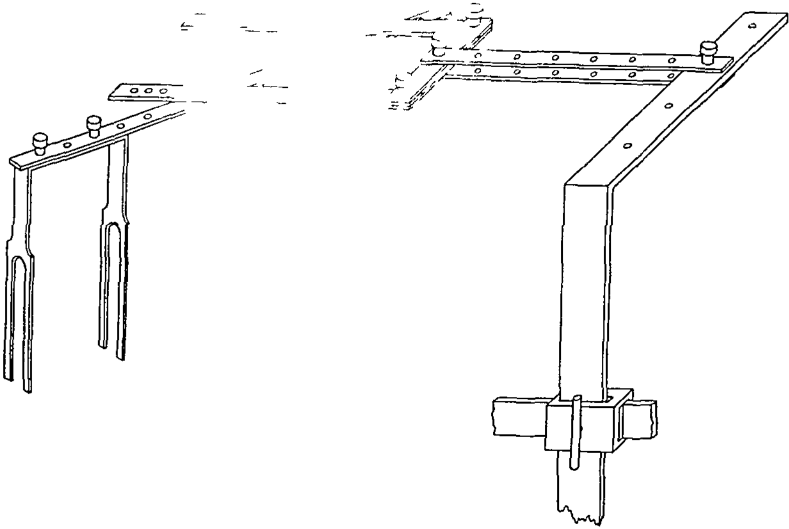


Fig 2 Semi lateral view of Director with all parts in position

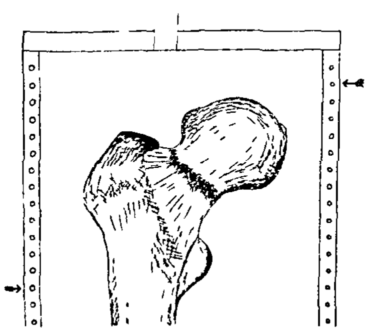


Fig 3 Arrows show localizing holes over which Director is fastened The parallel limbs are wider than actual to enable one to visualize the procedure

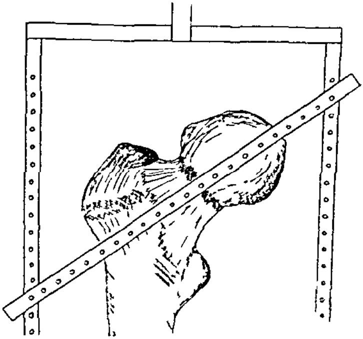


Fig 4 Director in position sho ment for fixation splint

A BONE STRUT FOR PARALYTIC FOOT DROP

L. D. SMITH, M.D., F.A.C.S.

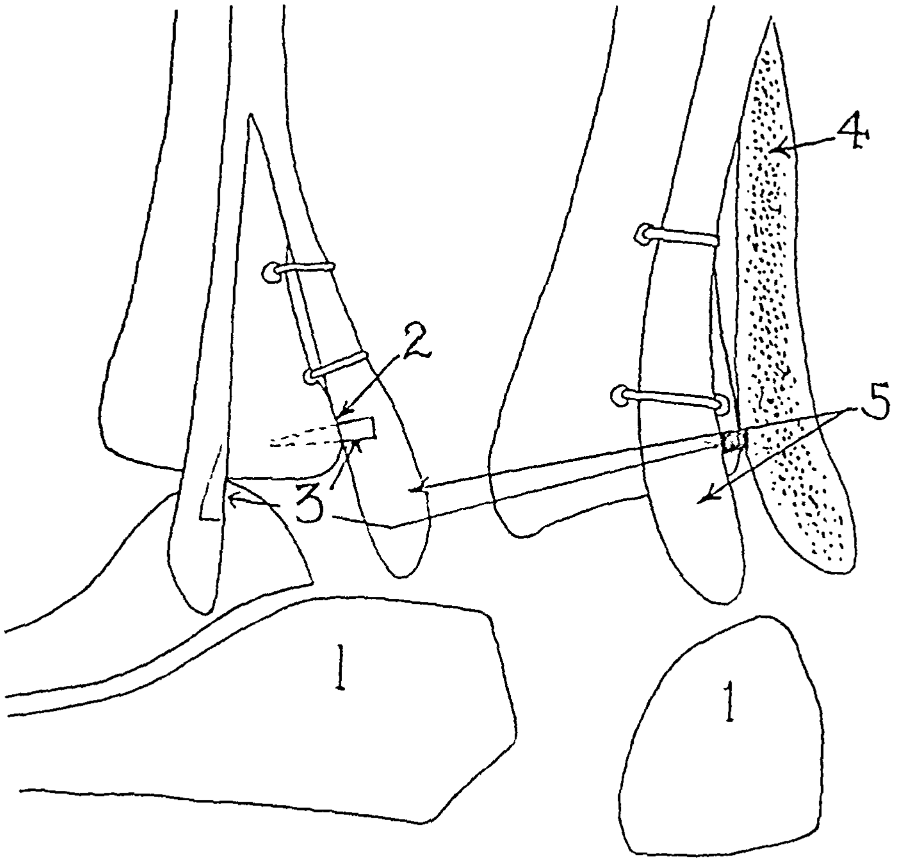
Clinical Instructor, Department of Orthopedic Surgery of Marquette University, School of Medicine

MILWAUKEE

IN cases in which it is desired to limit plantar flexion of the foot, otherwise retaining full motion of the ankle joint, the following method is offered.

point one-half inch distal to the external malleolus. The distal third of the fibula is exhibited.

The *fibula* is sawed in a frontal plane and bisected fore and aft and upward about 4 to 6 inches. The posterior half is carried medially



RIASSUNTO

Applicatore semplificato per la localizzazione della caviglia nel femore e un istrumento chirurgico per la guida alla fissazione interna

Un direttore per stabilire correttamente l'angolo del binoccole del femore sopra il susto è presentato Il direttore ha una posizione fissa in relazione al paziente e alla tavola d'operazione Diminuisce il tempo dell'operazione ed è ugualmente applicabile a tutte specie di fissazione chirurgica La sua lunghezza precisa può stabilirsi definitamente La sua applicazione e funzione non aumentano traumatismo nè dipende da interpretazione personale

NEW MEMBERS OF MEXICAN CHAPTER

The following were received as members of the Mexican Chapter of the International College of Surgeons in the Chapter's session held December 1 **Dr Antonio Cornillon,** director of Hospital Frances Mexico City and a member of the National Academy of Medicine **Dr Manuel F Madrazo,** member of the Mexican Academy of Surgery and of the National Academy of Medicine **Dr Alejandro Cerisola,** member of the Mexican Academy of Surgery **Dr Aquilino Villanueva** director of the National General Hospital Mexico City and a member of the Mexican Academy of Surgery and of the National Academy of Medicine **Dr Estaban Paulin,** director of the Civil Hospital and member of the Mexican Academy of Surgery Queretaro City and **Dr Rafael Macias Peña** director of the Civil Hospital and a member of the Mexican Academy of Surgery Aguascalientes City All except the last two are from Mexico City

Dr Gonzalo Casteñada F I C S, of Mexico City has been made chief of the gynecology service of the Spanish Hospital Mexico City

Dr Aquilino Villanueva, F I C S, of Mexico City was elected president of the Board of Directors of Mexican Academy of Surgery for 1940 1942 at a meeting held November 23

The fourth International Congress of Neurology will be held in Paris in 1942 or 1943 if plans made at the third Congress held in Copenhagen August 21 25 1939 are carried out The third Congress was attended by about 500 neurologists from all countries

INTERNATIONAL OFFICERS

President, Dr Andre Crotti Columbus Ohio

President Elect Dr Fred H Albee New York City

Vice Presidents Prof Dr Rudolf Nissen Istanbul Turkey Prof Dr A Mario Dogliotti Catania Italy Prof Dr Alexander Stanischeff Sofia Bulgaria

Treasurer Dr William Seaman Bainbridge New York City

Acting International Secretary Dr Max Thorek Chicago

The displaced p[illegible] still undisturbed in [illegible] upper end, grows f[illegible] The fibula norm[illegible] three-fourths of [illegible]

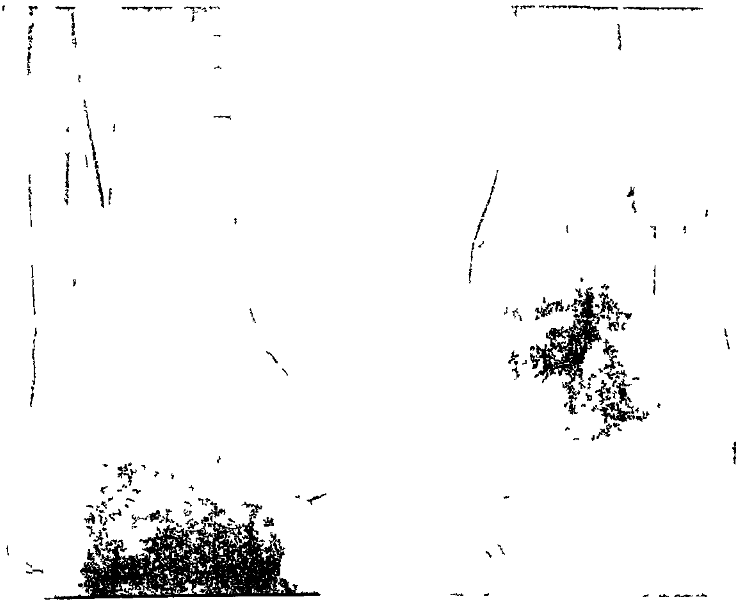


Fig 2 Roentgenogram of distal portion of tibia and fibula of Mr H W aged 61 taken 5½ months postoperatively Bone block was performed January 17 1938 film was taken July 1 1938

seems to be especially fashioned to lend a buffer strut for the dorsal surface of the os calcis to impinge against The peroneal tendons act as a cushion between the strut and the os calcis

The displaced posterior half of the fibula can be retained in place either by chromic ties threaded through holes in the tibia or preferably, by a bone peg

The bone peg is the most easily placed and positive temporary fixation is carried out to retain the displaced fibular fragment The bone peg can be taken from either of the fibular fragments as shown Fig 1

COMMENT

The fibular fragments effect a bony consolidation in their new relationship to

[illegible] tibia The posterior [illegible] will unite with the [illegible] the tibia, upon [illegible] The space between the fibular fragments will eventually be bridged across with new bone

A plaster boot extending from the toes to the knee is applied so that it holds the foot in neutral position

Under normal conditions the patient may be permitted to get about on crutches within ten days Guarded weight bearing may be begun with the use of crutches within three weeks The cast may be removed in five weeks Full weight bearing without crutches may be resumed in eight to ten weeks

This method has been us

der Beweglichkeit im Knöchelgelenk. Die Resultate von 10 Fällen werden in Tabellen-Form dargestellt.

SUMARIO

Una cuña de hueso para la caida paralítica del pie

La tecnica del autor de la operacion abierta para limitar la flexion del pie con la retención de la mocion completa de la articulacion del tobillo es descrita. Los resultados obtenidos en 10 casos son presentados en forma tabular.

RIASSUNTO

Un puntello di osso per caduta di piede paralitico

La tecnica dell'autore per operazione aperta per limitare la flessione della pianta del piede con ritenzione di completo movimento della giuntura della caviglia e descritta. I risultati ottenuti in 10 casi sono presentati in forma tavolare.

—o—

Drs Chevalier Jackson and Chevalier L Jackson, professors of broncho-esophagology, Temple University School of Medicine, Philadelphia, will lecture on "The Romance of Bronchoscopy" February 29 at the New York Academy of Medicine, New York. This is one of the programs in the Fifth Series of Lectures to the Laity sponsored by the Academy and given on Thursdays at 8:15 p m.

—o—

Owing to the war the British Medical Association will not hold its annual meeting in 1940, according to an announcement in the *British Medical Journal*. The meeting was to have been held in Birmingham.

—o—

The first Barnard Hospital Lecture on "Female Hormones and Genital Cancer" was given by **Dr Edgar Allen,** of the Yale University School of Medicine, in the auditorium of the St Louis Medical Society on October 31.

—o—

Dr H L Eason, principal of the University of London, was elected president of the British General Medical Council at a meeting held November 28. He succeeds **Sir Norman Walker,** who has served since 1931.

—o—

It is reported that Germany has closed all but four of her universities; those remaining open are Berlin, Vienna, Munich and Jena.

—o—

Science Progress, issued quarterly and now in its thirty-fourth volume, has suspended publication because of war conditions.

—o—

The faculty of medicine of the University of Bordeaux recently conferred the degree of doctor, *honoris causa*, on **Dr Constantin Daniel,** professor of obstetrics and gynecology at the University of Bucharest.

—o—

Dr Viggo Christiansen, formerly professor of neurology at Copenhagen, died November 3. Dr Christiansen was president of the Third International Neurological Congress held in Copenhagen in August.

—o—

Dr Percy Bartlett has retired from the faculty of the Medical School of Dartmouth College with the title of professor emerit [illegible] rger [illegible] He has been a member of the facu [illegible] ea

REFERENCES

Yerger, F.: Ludwig's Angina: Report of 23 Cases, Illinois M. J. 49: 168-170 (Feb.) 1926.

Leonardo, R. A.: Note on Ludwig's Angina, Ann. Surg. 86: 636, 1927.

Van Wagenen, W. P., and Costello, C. V.: Sublingual Phlegmon, Ann. Surg. 87: 684, 1928.

Grodinsky, M.: Ludwig's Angina, Surgery, 5. 678-696 (May) 1939.

SUMMARY

A total of 21 cases of Ludwig's angina was treated in the General Hospital, Rochester, New York, during the last 10 years, one case occurring for every 3,630 hospital admissions. The analysis of these cases which is herein presented indicates that the mortality (five per cent in this group) will always be low and that the surgeon need no longer dread the outcome of any case of this disease.

RÉSUMÉ

L'angina de Ludwig: revue de 21 cas

Ces cas furent soignés au General Hospital, Rochester, N. Y., durant les dix dernières années, un cas pour chaques 3,600 malades admis à l'hôpital. L'analyse de ces cas montrent que la mortalité de 5 décès dans ce groupe sera toujours peu élevé et que ces cas ne doivent pas inspirer une grande inquietude au chirurgien.

ZUSAMMENFASSUNG

Bericht von 21 Fällen von Angina Ludovici

Einundzwanzig Fälle von Angina Ludovici wurden während der letzten 10 Jahre im „General Hospital" Rochester, N. Y., behandelt. Das bedeutet, dass durchschnittlich ein Fall unter 3630 Neuaufnahmen vorkommt. Eine Analyse dieser hier veröffentlichten Fälle zeigt, dass die Mortalität, die in dieser Gruppe 5 o/o beträgt, immer niedrig sein wird und dass der Chirurg nicht mehr länger über den entgültigen Verlauf der Krankheit besorgt sein muss.

SUMARIO

Angina de Ludwig: Reseña de 21 Casos

Un total de 21 casos de angina de Ludwig fueron tratados en el Hospital General, Rochester, New York durante los ultimos 10 años, un caso por cada 3,630 enfermos admitidos. El analisis de estos casos el cual es presentado aqui indica que la mortalidad (5%) será siempre baja y que el cirujáno no tiene que temer mas los resultados en los casos de esta enfermedad.

RIASSUNTO

Angina Ludovico: Riassunto di 21 casi

Un totale di 21 casi d'Angina Ludovico fu trattato nell'Ospedale Generale, di Rochester, New York, durante i passati dieci anni, un caso occorrendo per ogni 3,630 ammissioni nell'ospedale. L'analisi di questi casi che è presentato qui indica che la mortalità (cinque per cento in questo gruppo) sarà sempre bassa e che il chirurgo non deve più temere il risultato di alcun caso di questa malattia

importance. It [illegible] drainage will not [illegible] mylohyoid diaphragm has been [illegible]*pletely* incised

The local surgical anatomy is of [illegible] importance because it has been shown that the high mortality in the p[illegible]t was due to lack of appreciation of the significance of this mylohyoid diaphragm hence the surgeon's insufficient opening of this diaphragm failed to result in adequate drainage, so that the cellulitis and edema extended frequently to the larynx, mediastinum and lungs Death from edema of the glottis, therefore, frequently occurred, a life-saving tracheotomy was performed on many other patients More rarely, secondary hemorrhage is the cause of death, as occurred in the only fatal case of our series

TREATMENT

Since the causative organism is frequently either the streptococcus or the pneumococcus, sulfanilamide therapy, postoperatively, may be of benefit, but preoperatively, I would not advise its use. For simple infections of the mouth and the area around the teeth, sulfanilamide is often of great value, but once a bona fide Ludwig's angina has developed, immediate and adequate surgery is demanded; once distinct edema and swelling of the floor of the mouth (with consequent elevation of tongue) are present, all temporizing measures should be thrown to the winds and the surgeon should make sure that he *widely* incises the mylohyoid If this is done *promptly and adequately before the condition becomes bilateral*, such a complication (extension to the other side) will be prevented in a large percentage of cases. But if both sides are already involved before operation, wide incisions bilaterally, through the entire length of the mylohyoid muscle, will almost always release the pressure in the patient's throat and induce prompt recovery.

[illegible]OSIS

[illegible] the differential diagnosis [illegible] it becomes obvious that [illegible] submental or submaxillary [illegible] does not constitute true Ludwig's angina This latter condition may subsequently develop from such a swelling [illegible] the infection spreads around the posterior border of the mylohyoid muscle (in the region of the submaxillary salivary gland) to invade the floor of the mouth, causing inflammatory edema (with or without actual pus formation there), with consequent elevation of the tongue. Such patients invariably develop respiratory and deglutition difficulties I would say, therefore, that when definite edema of the floor of the mouth is present, the patient has a true Ludwig's angina (irrespective of its cause) and that this is a condition which cannot be easily confused with any other *malady*

ANALYSIS OF CASES

Continuing our analytical study of the above mentioned 21 cases, we find as follows:

Sex. Eight cases occurred in males; thirteen in females.

Age. This varied from 19½ months (female infant) to 70 years (syphilitic female who died from other causes) The average age was 32 years.

Etiology. Dental caries was the original cause in four males and seven females. A fractured jaw bone was the original cause in one female (auto accident) and in one male (blow on the jaw received from fighting), cervical adenitis, of two cases, one in a male and one in a female.

Dentures and bridge work were responsible for two cases, one in a woman in whom the partial plate irritated the gum around a healthy tooth and started an infection which later spread to the floor of the mouth, the other case in a man, aged 64, in whom one week prior to admission to the hospital a piece of jaw bone had been chipped off while eating

Vincent's organisms with diplococci were found in one case (female); in the two remaining cases (both female) the cultures were sterile.

Period of Hospitalization. This varied somewhat, depending on whether the patient had any other complaints, but most of the patients who recovered did so within 8 or 10 days, if not sooner. The shortest period of hospitalization was two days and the longest period was one month for a single operation. One patient had to be operated upon a second time for a recurrent Ludwig's angina two months after his first operation. Drainage had been made through a submental incision and apparently the scar that resulted from this incision interfered somewhat with proper drainage and was thus an etiological factor in the recurrence of the Ludwig's angina. This patient had infection with pneumococcus type III, which was the same offending organism responsible for the recurrence as proven by culture taken during the second operation.

End Results. Two patients died. One was the 70 year old woman with syphilis whose death was attributable to other causes, the Ludwig's angina being only a contributing cause. The second patient who died was a young girl, 21 years old, in whom the second operation on the right side was performed three days after the first because of insufficient drainage and on the following day an operation on the left side because of extension of the infection to the left side. She apparently was progressing well when she suddenly had a severe and fatal hemorrhage from the mouth, presumably from the right sublingual region. Further details are not available because autopsy was refused. All other patients did well except one man, aged 50, who was infected with pneumococcus type III and had been treated with a submental incision. As mentioned above, a second operation had to be performed on this man two months later. Still later, a third operation (plastic) was performed to remove the disfiguring scar in the submental region. Since in only one case which was due solely to the Ludwig's angina the mortality averaged only 5 per cent. If the cases are treated adequately enough and early enough the mortality rate will be considerably less.

COMPARISON OF RESULTS

In comparing our statistics with others formerly published, I noticed numerous differences. For instance, regarding sex, Yerger reported 23 cases (from Cook County Hospital) in which the disease occurred ten times more frequently in men than in women, whereas only 8 of our 21 cases occurred in men; he reported age limits of 7 years (youngest patient) to 56 years (oldest patient) as compared with our findings of 19½ months to 70 years; most of his reported cases were caused by careous teeth and 100 per cent had dysphagia, but only 33 per cent of these also had dyspnea. He also gave a mortality of 46 per cent for his 23 cases, compared to our mortality of only 5 per cent in 21 cases. In fact, a brief review of the literature shows a surprisingly high mortality — viz. (1) Thomas, 1908, 40 per cent mortality in 106 cases; (2) Van Wagenen and Costello, 1928, 92 cases, 31 per cent mortality (cases compiled in the literature) whereas they also reported, at the same time, 16 cases of their own with mortality of only 12.5 per cent. However, Robertson of Chicago claims that Thomas' 40 per cent is really very low and that the actual mortality is considerably higher. In view of these statements and figures, our mortality rate of 5 per cent is surprisingly low. However, I believe that with adequate and prompt surgery the mortality will always be low and that the modern surgeon need no longer dread the outcome of any case of Ludwig's angina when he encounters such a case in his practice.

LADIES' PROGRAM

SUNDAY, FEBRUARY 11

4:00 to 8:00 P.M.—Registration in Main Lounge of the Florida Medical Center; Inspection of exhibits.

8:30 P.M.—Social hour—Negro Spirituals sung by C.C.C. boys in the Sun Lounge, Florida Medical Center.

MONDAY, FEBRUARY 12

9:30 A.M.—Sightseeing trip.

2:30 P.M.—Beach trip; shell gathering.

TUESDAY, FEBRUARY 13

9:30 A.M.—Visit to the Ringling Art Museum and Ringling Circus winter quarters at Sarasota, Florida.

12:00 M.—Luncheon at Ringling Hotel, Sarasota, followed by visits to the Snake and Celery Farms.

WEDNESDAY, FEBRUARY 14

9:30 A.M.—Visit to the Orchid Jungle Garden.

10:00 A.M.—Swimming party and Luncheon at the Treasure Island Beach Club.

3:00 P.M.—Air Carnival at the Fred Albee Airport.

SCIENTIFIC EXHIBITS and MOTION PICTURES

Among which are—

A New Surgical Sponge—Dr. Oscar B. Nugent, Chicago.

A New Needle and Technique for Varicose Vein Injection—Dr. F. M. Al Akl, New York City.

Rhinoplastic Surgery—Dr. M. M. Kopp, New York City.

PARTIAL LIST OF COMMERCIAL EXHIBITORS

Booth No.	
1-2	Bell & Howell Company, Chicago, Illinois.
26	Comper Manufacturing Company, Pittsfield, Massachusetts.
11	Depuy Manufacturing Company, Warsaw, Indiana.
16	C. B. Fleet Company, Inc., Lynchburgh, Virginia.
18	The Ohio Chemical & Mfg. Company, Cleveland, Ohio.
15	J. B. Lippincott Company, Philadelphia, Pa.
14	The Tower Company, Inc., Seattle, Wash.

IMPORTANT NOTICE

For reservations, write to Dr. W. H. Hoskins, Florida Medical Center, Venice, Florida. Dr. Albee also will be pleased to book accommodations for any one by request. All members coming to Venice by automobile are requested to come directly to the Florida Medical Center for reservations, etc. All members coming by train will be met at the railroad station at Venice.

Meetings and Congresses

General Program of the Fifth Assembly
UNITED STATES CHAPTER INTERNATIONAL COLLEGE OF SURGEONS

(GENEVA) VENICE FLORIDA

February 11 12 13 and 14 1940

CHAIRMAN ON ARRANGEMENTS
DR FRED H ALBEE

PROGRAM COMMITTEE
DR FREDERICK M DOUGLASS
Chairman
DR FRED H ALBEE

HOSTESS TO ASSEMBLY
MRS FRED H ALBEE

SUNDAY, FEBRUARY 11

1 30 P M—Air Carnival Fred Albee Airport Venice

4 00 to 8 00 P M—Registration in Main Lounge of the Florida Medical Center inspection of exhibits (No registration fee)

8 15 P M—Welcome by Mayor J F Blalock

9 00 P M—Social Hour in the Patio and Inspection of Exhibits

8 30 P M—Social hour—Negro Spirituals sung by C C C boys in the Sun Lounge Florida Medical Center

MONDAY, FEBRUARY 12

8.30 A M—Assembly called to order in Sun Lounge Florida Medical Center by Dr Fred H Albee General Chairman Address of Welcome

SCIENTIFIC SESSION

President Frederick M Douglass Toledo Ohio presiding

9 00 A M—**Vaterian Pseudodiverticulum of the Duodenum**

Dr Manuel A Manzanilla Faculty of Surgery University of Mexico Member Editorial Board Regent from Mexico City Mexico

Discussion opened by Dr Charles Edward Nagel Great Falls Montana

SYMPOSIUM ON VENOM THERAPY

9 30 A M—**Preliminary Observation of the Use of Venom in the Treatment of Spastic Paralysis**

Dr Thomas Wheeldon Richmond Virginia

Venom in the Treatment of Arthritis Arthralgia, Neuritis and Allied Affections

Dr Paul Butler Orlando Florida

Review of Recent Developments in Pharmacognosy in Venoms

Eugene Maier Ph D Director of Laboratories Florida Medical Center Venice Florida

Discussion opened by Dr Wm Seaman Bainbridge International Treasurer International College of Surgeons New York City

10 30 A M—**Methods of Obtaining and Preparing Venom**

Texas Jim Mitchel Sarasota Florida

11 00 A M—**Retroperitoneal Tumors**

Dr William Carson Instructor of Sur

with changes found in splenectomized subjects. The differences in graphs were the more significant, the shorter the period of time which had elapsed from the operation; they existed, however, even after four years.

Influence of Circumscribed Diseases of Brain on Movements of Alimentary Canal

It is possible to prove the influence of some circumscribed diseases of the brain on movements of the digestive canal by means of x-ray examination. In tumors of the brain located in the neighborhood of vegetative centers (as was ascertained at operation or section), Bláha (Rozhl. chir. 18: 520, 1939) found signs of obstipation of the spastic type. In one group of patients examined there was spasm with slow emptying of the stomach; in the other there was stronger peristaltis. This difference could not be accounted for by the localisation of the tumors, this being in some cases identical in both groups. In one case of tumor of the pontocerebellar angle, x-ray examination before operation revealed spastic changes of the stomach and colon with slow emptying of the stomach. By means of x-ray examination, however, only 14 days after removal of the tumor the spasm of the stomach was found to be much more diminished, and the time of emptying normal. The prompt effect of operation on the nerves of the stomach may be therefore supposed. This case brings out clearly the fact that the peristaltic changes are really under the influence of the tumor; secondly, it shows that the type of peristaltic changes is determined not only by localisation, but also by the degree of irritation up to damage of the corresponding centers.

Echinococcosis of Lungs

The symptoms of echinococcosis of the lungs are very often uncertain. Besides increased dyspnœa with a dry cough that causes the doctor embarrassment, if he does not use x-ray examination, blood fibres may be found in the sputum. More marked hemoptysis and fever set in with suppuration. Little reliance can be placed in Casoni's and Weinberg's reactions and eosinophils. The best method of diagnosis is x-ray examination, but even so echinococcosis may be mistaken for tumor. Just the small sickle-shaped clearing up over the superior pole of the cyst may be considered as an absolutely reliable symptom. Kostlivy, (Rozhl. chir. 18: 611, 1939) operated on 7 cases and results in all were successful. In cases with adhesions it was sufficient to make incision and to drain. If there are no adhesions to the pleura, he operates in one session having performed minor pneumothorax before. After performing probatory puncture in order to localize the cyst, he injects two to three cc of one per cent solution of formol to kill the worm. He removes the cyst with the capsule, without draining or suturing the cavity, fixing, however, the edges of the lung wound to the pleura. He does not suture even the wound after costotomy, covering it only with gauze and vaseline. There were no complications. Antonazzi's method was used in one case, with iodizing of the common marsupialization.

Fatty Embolisms in Thoracoplasties

Three young patients died of fatty embolisms after thoracoplasties for cavernomatous tuberculosis. Two were apoplectic and one was chronic in form. Histologically fatty embolism was found, in two cases in the pulmonary circulation as well as in the systemic, in one case only in the pulmonary. In no case was one of the foramen ovale found. Fatty embolism is very rare in thoracoplasties, but Brunclík (Rozhl. chir. 18: 633, 1939) states that a certain number of patients die of this complication without correct diagnosis being made, for it may be mistaken for postoperative shock, bronchogenic or miliary dissemination of a process, edema of the lungs, or the final stage of secondary anemia. The cause may be explained by damage to the bone marrow during the costotomy. It is advisable to think of the possibility, especially nowadays, that in some cases one can use decholine with good results.

X-rays in Essential Disseminated Polyposis of Colon

Even symptomatic treatment of disseminated polyposis is a very difficult problem. Sváb (Rozhl. chir. 18: 764, 1939) treated two young men with typical romanoscopic and roentgenologic findings of polyposis in the period during which they presented severe symptoms of secondary colitis: diarrhea with mucus and blood during the last two to four years and heavy loss in weight. For 12 days x-ray treatment was given in five abdominal places (10x15 cm.), at a distance of 50 cm., with 1 mm. copper filtration plus 1 mm. aluminum filtration. He utilized 175 kilovolts, making use of 4 milliamperes and delivering 265 r/v at intervals of 5 days. During this treatment the patients had abdominal pain and nausea and felt weak. After several days, however, the condition became better. In one patient, who has been followed for 5 years after x-ray therapy, diarrhea has appeared only in the spring and autumn, and during the last two years it has entirely ceased and the patient has put on weight. He no longer has any trouble and receives no treatment. The roentgenologic finding of polyposis is still present to the same extent; the haustra that were not visible before are now quite visible. In the other patient the time which has elapsed after treatment is still very short

Dr. Alfonso Ortiz Tirado Mexico City Mexico, Chief Surgeon Tirado Orthopedic Clinic

Discussion opened by Dr Joseph M Greer, Phoenix, Arizona

12:30 P.M.—Brief Retrospective and General Considerations and Criteria in the Surgery of Thyroid Glands

Dr. Desiderio Roman Clinical Professor of Surgery, Hahnemann Medical College and Hospital of Philadelphia

Discussion opened by Dr Andre Crotti Director Crotti Clinic President International College of Surgeons, Columbus Ohio.

1:00 P.M.—Luncheon.

1:30 to 2:30 P.M.—Round Table—Guild Activities in West Virginia

Dr G C Irwin, Charlestown, West Virginia, Past Chairman

Dr Thos L Harris, Parkersburg West Virginia, Chairman

Guild Activities in Toledo, Ohio.

Dr Wm Neil Dr W D McCormack Toledo, Ohio

Guild Activities in New England.

Dr George S Foster, Manchester, New Hampshire

2:30 P.M.—Social Program.

5:00 P.M—Inspection of Exhibits.

7:30-9.00 P.M.—Banquet and scientific program. Main Dining Room, Florida Medical Center

Microcinematographic and Electrocardiographic Studies of the First Heart Beats and the Beginnings of the Circulation in Living Embryos.

Dr. Bradley Patten, Director of Department of Anatomy, University of Michigan, Ann Arbor Michigan

WEDNESDAY, FEBRUARY 14, 1940

9.00 A.M.—Bronchoscopy and Bronchography as Aids in Surgery.

Dr Chevalier Jackson, Temple University, Philadelphia, Pennsylvania

9:30 A.M—A Study, Clinical and Literary of Endometriosis.

Dr P Brooke Bland, Philadelphia Pa, Prof of Obstetrics, Jefferson Medical College of Philadelphia, Pennsylvania

Discussion opened by Dr Raymond E Watkins, Portland, Oregon, Clinical Professor Obstetrics and Gynecology, University of Oregon, and Dr Dewell Gann, Jr, Little Rock, Arkansas, Prof Emeritus, Gynecology, University of Arkansas

10:00 A.M.—The Treatment of Compound Fractures.

Dr. Grover C Weil, Associate Professor of Surgery University of Pittsburgh Medical School Pittsburgh, Pennsylvania

Discussion opened by Dr John R Moore Professor of Orthopedics, Temple University Philadelphia, Pennsylvania.

10 30 A M—Pre- and Post-Operative Care of the Patient from a Physiological Standpoint

Dr Benjamin I Golden, Director and Chief Surgeon in Charge, Davis Memorial Hospital Elkins, West Virginia

Discussion opened by Dr Earl B Craig Professor of Gynecology, Hahnemann Medical School, Philadelphia, Pennsylvania

11 00 A.M.—Reconstruction of the Ureter.

Professor Rudolph Nissen, Department of Surgery, University of Istanbul, Istanbul, Turkey

Discussion opened by Dr Samuel Lubash, New York City.

11:30 A M.—Present Status of Vitamin and Mineral Therapy.

Dr Daniel T Quigley, Instructor, Surgery, University of Nebraska Medical School, Surgical Staff University Hospital and Lutheran Hospital, Omaha, Nebraska

Discussion—general.

12:00 M.—Acute Cholecystitis.

Dr Clark D Brooks, Professor of Clinical Surgery, Wayne University College of Medicine, Detroit, Michigan

Discussion opened by Dr Wm. N Dunn, Atlanta, Georgia

12:30 P.M.—Luncheon.

Present Social and Economic Trends and the Future of Surgery.

Dr E J McCormick, Chief of Staff, St Vincent's Hospital, Toledo, Ohio

Discussion opened by Dr William Jepson, Sioux City, Iowa, Prof Emeritus Surgery, University of Iowa

1:30 to 2:30 P.M.—Executive Session of the United States Chapter, limited to Associate Members, Members and Fellows.

3:00 P.M.—K. M. I. Gymnastic Drill and Dress Parade.

4:30 P.M.—Garden Party at the home of Dr. and Mrs. Fred Albee, "Point O' Palms," Nakomis, Florida.

8:00 P.M—Convocation at the Theater, Venice, Florida.

Dr F M Douglass presiding

Dr Benj I Golden, Elkins, West Virginia

Dr Earl Craig, Philadelphia, Chairman Cap and Gown Committee.

Book Reviews

Tratado de clinica propedeutica quirurgica.

By Dr. Miguel Lopez Esnaurrizar, Professor of Materia, Faculdad de Medicina, Universidad Autonoma de Mexico. Pp. 256, with 61 illustrations. Mexico: Union Tipografica Editorial Hispano-Americana, 1939.

THIS book presents an interesting and complete survey of all the means which may be used by the examining physician in his effort to diagnose a surgical pathologic condition before starting the treatment. Every single procedure, symptom, physical sign or test which may be helpful in the approach of the anomalous condition is quoted and interpreted. Hereby, the author emphasizes especially the value of the primitive and simple forms of the medical exploration, such as inspection, palpation, percussion and the testing of functional movements. With instructive clarity and great precision, the far reaching importance of the physical examination is pointed out; every single sign which may be observed in any of the important pathological surgical conditions is discussed and interpreted as to its significance and meaning. The limits, however, of this type of physical exploration are fully recognized and laboratory procedures are referred to wherever more objective information may be indicated by the former.

The book is intended primarily for the student, but its study will also reward the experienced surgeon. The student will be grateful for the excellent outline of approach to certain surgical conditions as well as to the patient himself. The practitioner may obtain quick and valuable information as to the establishment and confirmation of a diagnosis, since this book contains a collection of helpful symptoms and signs which rarely can be found elsewhere but in large textbooks. The reader will appreciate the carefulness with which the author has eliminated all questionable procedures which do not have the backing of the generally accepted practice; on the other hand, not even the smallest, but reliable, detail is unmentioned which could lead to a better understanding of the condition to be analyzed.

The book is divided into three parts, of which the first one contains general considerations about the information one may obtain by means of physical examination, general observations and several technical procedures, such as exploratory puncture, biopsy, roentgenograms and laboratory tests. The second part presents a discussion of important points in the examination of tumors, fractures, wounds, lymph glands and periphereal circulatory apparatus as far as surgical interest exists. The third and main part of the book consists of eleven chapters dealing with the special pathology and diagnosis of the surgical conditions of the different regions of the human body. The last portion of the book contains general ideas about several problems, such as prognosis and history taking.

The book contains abundant and interesting material in applied anatomy and functional pathology, illustrated by more than 60 pictures. It is informative and instructive for the experienced and an excellent means of introduction to as well as instruction in surgical understanding and knowledge for the beginner.

K. SANDBERG

Surgery of the Eye.

By Meyer Wiener, M.D., Professor of Clinical Ophthalmology, and Bennett Y. Alvis, M.D., Assistant Professor of Clinical Ophthalmology, Washington University School of Medicine. Price, $8.50. Pp. 455, with 452 illustrations on 396 figures. Philadelphia: W. B. Saunders Company, 1939.

AS stated in the introduction to this book, the authors had in mind the writing of a textbook of surgery of the eye that would in its entirety live up to the standards of the presentation of the tear-sac-extirpation in Meller's textbook of eye surgery. Although the reviewer feels that Meller's book contains many more good features than this one, it can be said that Wiener and Alvis' textbook is of high value for various reasons.

The authors did not intend to write a textbook comprising all procedures used in the past and present but undertook rather to report in detail those operations which have proved most successful in their own experience, always bearing in mind the fact that they were presenting the subject to the average eye surgeon. Thus, the book

Correspondence

FOREIGN LETTERS

PRAGUE

(From Our Regular Correspondent)

November 14, 1939

Czech Society of Surgeons

The Czech Society of Surgeons after several postponements, held its fourth Congress in Prague June 10 to 11, 1939 under the presidency of Prof Dr J Divis The principal subject of the Congress was surgery of the spleen

Chronic Subdural Hematoma

Jirásek (Cas lek ces 78 1125, 1939) emphasizes three unexplained matters in chronic subdural hematoma etiology, type of development and treatment Most of the patients are men of middle age, such as were his four The source of bleeding usually is the parasagittal veins or those of the lateral sinus Some authors suppose there is also bleeding into the dura In his cases operated upon during the last two years, Jirásek did not find the origin of the bleeding, although very careful revision was made Late appearance of symptoms after the injury may be accounted for by the increase in the volume of the hematoma by repeated bleeding or osmosis Subdural hematoma in one patient indicated triple bleeding which was confirmed histologically The deformation of the brain caused by the hematoma which was quite visible even by means of ventriculography, disappeared much more slowly than is usual in surgery of tumors

In all operated cases extensive craniotomy was performed The mere boring of holes and the use of suction is advisable only if the patient's condition is grave The membrane of the hematoma and the clots of blood fixed to it should not be removed because of the danger of secondary postoperative bleeding It is sufficient to remove such a quantity of the hematoma as to allow the brain to become level Nevertheless, it was necessary in two cases to make revision of the wound on account of the secondary bleeding that occurred 12 hours following operation There was diffuse bleeding and again the source of bleeding could not be ascertained

Drainage is of no special prophylactic value, since the drain very soon becomes choked In bilitoxic conditions calcium and atropine may be recommended Patients with subdural hematoma are sure to die, if not properly treated, and operative treatment must be therefore regarded as being successful, notwithstanding the high mortality at the present time One of the patients operated on by Jirásek died, the others are well and their neurological condition became normal in some cases

Splenectomy in Wilson's Disease

In three cases splenectomy had a good effect on the hepatolienal system After operation leucopenia and thrombopenia ceased and ascites did not appear any more There was no effect on the nervous condition which had to be expected with regard to the irreversibility of the brain changes The cases have not been followed up longer than two years after operation, so that it is not yet possible to judge the influence on the duration of the disease Vahala (Rozhl chir 18 464, 1939) therefore considers splenectomy to be indicated in cases with remarkable cirrhotic symptoms

Loss of Working Capacity After Splenectomy

The loss of the spleen is up to the present time differently appreciated by doctors Above all, the question of persistent invalidism is still pending Knobloch (Rozhl chir 18 470, 1939), experimenting on rats, produced the evidence of persistent diminished resistance against infection in splenectomized animals

By graphs Niederle (Rozhl. chir. 18 413, 1939) objectively represented the latent insufficiency of splenectomized people which, for example, appears in diminished readiness and ability to accommodate themselves to increased physical effort He compared blood changes ([illegible] erythrocytes, proteins) occurring, [illegible] unit of work had been done, in [illegible] referring to jaundice is noteworthy. The chapter on radiologic examination is equally thorough and contains many illustrative points.

However, on page 30 one may take exception to the statement: " 'What may be learned by a straight radiograph of the abdomen without any contrast media?' The answer is, by accident a good deal; otherwise, probably nothing." This is not quite correct, for flat plate radiograms taken as diagnostic measures in intestinal obstructions are quite informative. In perforations of the stomach this equally holds true.

All in all, the book is a distinct contribution to contemporary medical literature and should be in the hands of every surgeon, student and medical man and on the shelf of every library. The index is comprehensive and thorough.

M. T.

Les causes de la mort au cours de l'occlusion intestinale haute expérimentale. By J. Bottin. Paper. Pp. 373. Louvain, Belgium: Etablissements Fr. Ceuterick, 1938.

THIS is a voluminous report and a scholarly discussion of the author's numerous experiments on the various types of intestinal obstruction which he induced in lower animals. It is a thorough survey of the whole subject. The author impartially reviews the work done by previous experimenters. The subject is exhaustively treated from the physiologic, biochemical, clinical and surgical standpoints. It is a classical work and clinicians and surgeons will be well benefited by the studious reading of this valuable and enlightening contribution. The author discusses the various theories — toxic, infectious, shock, etc.— that have been advanced, and also the influence of the condition on the various abdominal viscera —the suprarenal glands, the liver, etc.

The author demonstrates that intestinal obstruction leads to massive dehydration and important demineralization of the blood. There is a blood loss of sodium, potassium, calcium and chloride. The blood shows an increase of nonprotein nitrogen. There is a fall of arterial pressure and a marked diminution in the ability of the subcutaneous cellular tissue to absorb normal solution. This lessened capacity of the subcutaneous cellular tissue for absorption is due to several factors: anhydremia, blood demineralization, fall of the peripheral arterial pressure, toxic phenomena.

He describes various methods employed for the prolongation of life in this condition and shows why they fail to give satisfactory results. He shows by experimental results the outcome of ligation of the hepatic excretory ducts, and of ligation of one or both pancreatic ducts. A most interesting chapter is devoted to the influence and to the lesions found and brought about in the pancreas by intestinal obstruction. He attributes the deaths determined by intestinal obstruction to dehydration and demineralization and to intoxication from these factors, intoxication being the most important. This intoxication has its origin in pancreatic pathology. Many different therapeutic procedures are discussed in detail.

We would advise that the work be read and studied by all progressive physicians. The book contains over 1,100 bibliographic references. It

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Sir John Lynn-Thomas, F R C S F A C S, died Sept 21 at his home in Llechryd Cardiganshire Wales at the age of 78 years During the war of 1914 he was consulting surgeon to the Western Command and then deputy inspector of military orthopedics He was primarily responsible for the establishment of the Prince of Wales hospital in Cardiff which began as a hospital for limbless soldiers and later became a complete orthopedic unit

He retired from practice in 1921 but was still active in medical affairs and served on the council of the Royal College of Surgeons from 1918 to 1933 In 1931 the honorary license of the Society of Apothecaries of London was conferred on him

Dr Manuel F Madrazo, F I C S, of Mexico City has been elected Regent of Radiologic Surgery by the Mexican Chapter of the International College of Surgeons

Dr James B Murphy, member of Rockefeller Institute New York received the decoration of Officer of the Order of Leopold from the King of the Belgians in recognition of his work in the field of cancer research

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F. J. Pollock

Royal Northern Operative Surgery. By the Surgical Staff of the Royal Northern Hospital. Cloth. Price, £2.2s. Pp. 551, with 463 illustrations. London: H. K. Lewis & Company, Ltd., 1939.

L. E. BARRINGTON-WARD, in the preface of this excellent work, states, "The present volume is the work of several hands and is designed to represent as far as possible the practice of the Royal Northern Group of Hospitals. Each contributor has been responsible for his subject, and the contributions have been subjected to collective criticism and correction with a view to making the whole a corporate, connected, and balanced account of the surgery of the hospital . . . As a rule, one well-tried way of performing any given operation has been presented . . . Our aim, in short, has been to produce, not a textbook of anatomical exercises, but a live surgery to help and refresh the practising surgeon."

It must be stated at the outset that the authors have succeeded in their task. The composite represents the net results of united reflection in the evaluation of the material presented by a group of excellent surgeons. Every section bears the stamp of authority and thoroughness of preparation. It is obvious that in a work like this not every operative procedure can be encompassed. Young surgeons will find it of immense help and experienced surgeons will learn much from perusing its pages.

The volume is printed on very fine paper and the illustrations are highly commendable, easily followed and very instructive.

The arrangement of the operations is regional and covers the entire body and its structures. Every usual operation is discussed, from the most commonly performed procedures to such surgical interventions as cardiomentopexy and operations on the sympathetic nervous system. Fractures and orthopedic operations are sufficiently entered into to give the reader an instructive concept of present day treatment of fractures and orthopedic injuries.

The authors obviously garnered from contemporary surgical literature what they considered best for up-to-date surgical practices and included in the volume.

This reviewer predicts great success for this excellent volume, and it should unreservedly find a place in the library of everyone interested in the practice and advancement of surgical art.

Thorek

is of special value to the young surgeon who may compare his own technic with that of an authority like Meyer Wiener

In contrast to Meller s book with its European background Wiener and Alvis surgery represents American methods and development Among the greatest attractions of the book however are the numerous illustrations They were designed by a talented physician who of course could add his medical knowledge to his technical skill in designing Whenever necessary special inserts showing a magnification of the essential feature of the picture have been added Thus in many cases (e g in McReynold s operation for pterygium the glass ball implantation after enucleation various plastic procedures and eye muscle operations) a classical result has been obtained

The book can be highly recommended to every eye surgeon

Max Herzog

Clinical Electrosurgery By Gustavus M Blech G C S G C G M D LL D formerly Professor of Clinical Surgery Loyola University Consulting Surgeon Westlake Hospital Attending Surgeon Edgewater Hospital With chapters by Hector Alfred Colwell M B Ph D D P H L R C P M R C S and Brian Wellington Windeyer F R C S D M R E Middlesex Hospital Price $4 Pp 389 New York Oxford University Press 1939

THE author has written a monograph consisting of 16 chapters based on forty years clinical experience The chapter on The Historical Development of Electrosurgery by H A Colwell and the chapter on Radiotherapy of Neoplasms by Windeyer and Colwell are excellent It contains a glossary of 8 pages

The text of the book does not contain a single photograph or microphotograph of tissues removed by electrosurgery nor do proper illustrations augment the text

Since the Science of Surgery has been based on pathology for centuries it is imperative that modern surgical practice be based on the biological sciences

I reprint a few from many statements made throughout the book which stamp the value of the text We read on page 67 This book being intended for *self instruction* (sic) a few suggestions for the acquisition of a correct electrosurgical technique may not be amiss On page 125 the author states For the past five years we have incised each furuncle with the electrotome (cutting current) most often under local analgesia but occasionally without any form of analgesia We employ this procedure even at a stage before pus can be demonstrated because quite often one finds that the pain has been relieved drainage eventually becomes established and further surgical intervention is obviated Another example is found on page 200 Malignant Goiter The operation is technically very difficult but surgeons who have had even a limited experience with the electrosurgical removal of benign goiters should have no unusual difficulty in carefully excavating the concerned structures with the loop electrode provided of course the parathyroids have been exposed to view

His classification of tumours is rather unorthodox

On page 208 we read We group Ca + cases of Paget s disease and chronic cystic mastitis in which the diagnosis of cancer may be entirely wrong or correct And on page 209 The symbol of Ca + + is given to all mammary tumours which are either definitely known to have appeared but recently (not merely accidentally detected by the patient) that are soft to the feel of a size not exceeding a walnut without evidence of an inflammatory mass in the vicinity of the neoplasms and in which the most careful palpation fails to detect enlarged axillary and subclavicular glands An additional condition is that the woman is of climacteric age or in the case of a man that he has passed the sixtieth year of life

While the Oxford University Press has maintained its high degree of efficiency of production the reviewer regrets that this book cannot be recommended

W J Carson

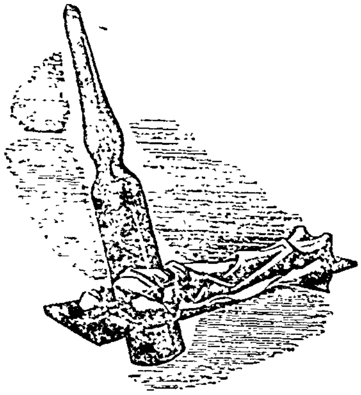
Chronic Diseases of the Abdomen By C Jennings Marshall M S M D (Lond) F R C S (Eng) Price $6 Pp 247 with 131 illustrations Boston Little Brown & Company 1939

CHRONIC abdominal symptoms constitute frequently perplexing problems A volume on the subject is timely Dr Marshall s work fills a much needed want in this respect

The first part of the work deals with the technic of physical examination of various parts of the body and methods of procedure both clinical and laboratory

The second part discusses symptomatology from many points of view The evaluation and interpretation of both subjective and objective manifestations is stressed One is impressed even after a casual thumbing of its pages with the excellence of the work

On page 38 one finds splendid guide posts in the diagnosis of anastomotic ulcer Equally impressive and instructive is the discussion on diagnostic criteria of pancreatic pseudo cysts The material



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[1] Perla, D.; Freiman, D. G.; Sandberg, M., and Greenberg, S. S.: Proc. Soc. Exper. Biol. & Med. 43:397 (Feb.) 1940.

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A P HEINECK

Diseases of the Nose and Throat By Charles J Imperatori M D Professor of Otolaryngology, New York Polyclinic Medical School and Hospital and Herman J Burman, M D, Assistant Professor of Clinical Otolaryngology New York Post graduate Medical School, Columbia University Second edition Price, $7 Pp 723, with 480 illustrations Philadelphia J B Lippincott Company, 1939

THIS volume is the second edition of a widely read work It was previously published only three years ago, but the authors felt that 'the steady progress of rhinolaryngology had necessitated extensive additions and numerous revisions,' hence this edition was produced

The form of presentation of the subjects is useful, particularly to those who wish a clinical reference work Under each clinical entity are discussed symptoms diagnosis and treatment, followed by pathology, etiology and prophylaxis

The first three chapters deal with equipment, the examination of the patient and the use of cocaine A section on the nose includes a chapter on the plastic repair of deformities of the nose In the section on the sinuses there is a chapter on roentgen examination of the accessory nasal sinuses and in this the most advanced technic is described Cytology of the nasal secretion is discussed

Diseases of the nasopharynx, pharynx and mouth, salivary glands and tonsils are presented at length The section on the larynx is very complete Included also are the diseases of the trachea and bronchi, lungs and esophagus There is a section on peroral endoscopy

The last few chapters are unusual in a work of this kind The use of physical therapy and radiation in relation to the nose and throat are presented in such a way as to be very practical and useful The chapter on allergy includes hay fever and asthma The portion on hyperesthetic rhinitis, however, is included under diseases of the nose The chapter following the one on allergy is on the relationship of general disease to the nose and throat, and the last describes laboratory aids

This is an excellent volume as a reference work for the general practitioner and the spe-

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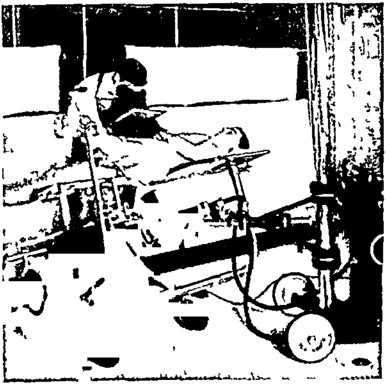

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Dr. Gonzalo Castañeda, F.I.C.S. 275
Dr. Manuel A. Manzanilla, F.I.C.S. 276
Dr. Miguel López Esnaurrízar, F.I.C.S. 277
Dr. Darío Fernandez Fierro, F.A.C.S., F.I.C.S., F.I.C.A. 278
Dr. Francisco Fonseca García, F.I.C.S. 279

GUILD ACTIVITIES

Nebraska Guild Organized 281
New Mexico Guild 281
New England States Guild 281

HISTORY

Colonel Fielding H. Garrison (1870-1935). On the Occasion of the Fifth Anniversary of His Death
Dr. Solomon R. Kagan 282

CORRESPONDENCE

Foreign Letters 284

BOOK REVIEWS

A Century of Belgian Poetry
Dr. Francisco Castillo Nájera 259
The Surgery of Injury and Plastic Repair
Dr. Samuel Fomon 259
Cardiovascular-Renal Disease
Dr. Laurence W. Smith, Dr. Edward Weiss, Dr. Walter I. Lillie, Dr. Frank W. Konzelmann and Dr. Edwin S. Gault 280
The Principles and Practice of Ophthalmic Surgery
Dr. Edmund B. Spaeth 280
Synopsis of Regional Anatomy
Dr. T. B. Johnston 280
The New International Clinics
Dr. George Morris Piersol, Editor 286
A Mirror for Surgeons
Sir D'Arcy Power 286
Illustrations of Regional Anatomy
Dr. E. B. Jamieson 287
Principles of Human Anatomy, with Synopsis and Bibliography
Dr. Charles F. DeGaris, Dr. Ernst Lachmann and Dr. Ralph E. Case 287
Surgical Applied Anatomy
Sir Frederick Treves 287
The Rectum and Colon
Dr. E. Parker Hayden 288
Archiva ed atti della Società Italiana di Chirurgia
Dr. Pietro Valdoni, Editor 288
Traitement médico-chirurgical des pleurésies purulentes tuberculeuses
Dr. A. Bernou, Dr. H. Fruchaud and Dr. H. D'Hour 289
The Surgery of Pain
Dr. René Leriche 289
The Art of Anesthesia
Dr. Paluel J. Flagg 290
The Medical Career
Dr. Harvey Cushing 290
The Injection Treatment of Hernia and Hydrocele
Dr. Lawrence Goldbacher V

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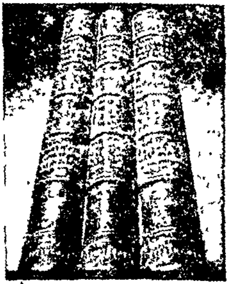

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JUNE 1940

EDITORIALS

Contributions of Mexico to Surgery
Dr Manuel A Manzanilla 193

ORIGINAL ARTICLES

Progress in Urological Surgery During the Last Decade
Dr Francisco Castilla Najera 196
Superior Renal Symphysis
Dr Manuel A Manzanilla 201
Primary Giant Cirsoid Aneurisms
Dr Francisco Fonseca Garcia 207
Generalized Spinal Analgesia
Dr Dario Fernandez Fierro 214
The Treatment of Pterygium
Dr Antonio Torres Estrada 219
Acidosis in Surgery
Dr Ignacio Morones Prieto 228
Anesthesia of the Pharyngeal Tonsils Through the Nasal Cavities
Dr Federico J Molas Oliveras 233
Prethoracic Esophagoplasty
Dr Abraham Ayala Gonzalez 235
Anesthesia in Mexico During the Nineteenth Century
Dr Benjamin Bandera 239
Two New Instruments for Craniotomy
Dr Mariano Vazquez 242
Some Consideration on Spinal Anesthesia
Dr Manuel Matos 252
A New Technic for Arthrorisis for Paralytic Talipes Equinus in Adults
Dr Eduardo Gomez Jauregui 256
Bone Graft of the Mandible with Prosthetic Objective
Dr Manuel Martinez Suarez 260
Surgical Treatment of Pelvic Peritonitis
Dr Juan Mora Y Ortiz 262
Pelvic Cellulitis
Dr Octavio Rojas Avendano 265
Extrauterine Pregnancy with a Living Child at Term
Dr Avelino Gavaldon Salamanca 271
ANNUAL PRIZE ESSAY ON ANESTHESIA 200

the metropolis of a state extending from Honduras to what is today the Dominion of Canada.

The first licensed surgeons who practiced in the City of Mexico were Maestre Diego Pedraza and Juan de Amézquita, both Spaniards; the latter arrived in New Spain with the expedition of Pánfilo de Narváez in 1520.

In 1524, the Conquistador founded the *Hospital de la Purísima Concepción y Jesús Nazareno* at the famous site known as Huitzillan, where he and the Aztec Emperor Moctezuma held their first meeting; the *Hospital de Jesús*, as it is named at the present time, is the oldest institution in all the Americas built for the purpose of assisting the needy.

In 1535, Don Diego de Mendoza, the first viceroy, brought to Mexico the first printing press that was operated in the New World, under the direction of Juan Pablos (the Italian Giovanni Paoli), and under the benevolent patronage of Fray Juan de Zumárraga, Archbishop of Mexico.

The first book on surgery printed in all the Americas was *Suma y Recopilacion de Chirurgia*, by Dr. Alonso López de Hinojosa; this was printed in the City of Mexico in the year 1578 by Antonio Ricarco. The following year, the second book published in America was also printed in Mexico City by Antonio Ricarco, under the title, *Tratado Breve de Chirurgia y de Algunas Enfermedades,* by Dr. García de Farfán, Fray Agustín de Farfán, an Austin friar.

Fray Bernardino de Sahagún and the first viceroy of New Spain, Don Antonio de Mendoza, founded the College of Santa Cruz de Tlaltelolco, inaugurated on January 6, 1536; the curriculum of this college included for the first time in America a course in medicine, and it seems that surgery was also taught for several years. From the Sahagún's college were graduated the first native surgeons, properly speaking, who added to their surgical practice the use of autochthonous medicinal herbs, the great variety of which played an important rôle in materia medica.

According to Dr. Francisco Fernández del Castillo, the first recorded cystotomy was performed in Mexico; he failed to find an older urological operation of this kind reported other than the one executed in Mexico City the middle part of the sixteenth century by Dr. Cristóbal Méndez, which was described by him in his book, *Del Ejercicio y Su Provecho,* published in Jaén, Spain, in 1553.

On September 21, 1551, Emperor Charles V issued a Royal Decree ordering the foundation of the Royal and Pontifical University of Mexico, having the same statutes, privileges and exemptions as the celebrated University of Salamanca; it was inaugurated on January 25, 1553. This and the University of Lima, Perú, were the first institutions of their kind on the American Continent. On November 7, 1582, a specialized course in medicine was created at the University of Mexico, with Dr. Juan de la Fuente in charge. In 1621 a course in surgery and anatomy was initiated, at the request of Dr. Rodrigo Muñoz, in accordance with the royal edict of Philip III. In the seventeenth century the Mexican *protomedicatus* was similar in organization and function to that of Castille, and Spain was the vanguard amongst all other countries in the science of medicine.

In 1576, Drs. de la Fuente, López de Hinojosa and Hernández gave great impetus to anatomic research on the cadaver, as a result of their work in dissection done at the Hospital Real.

The Royal College of Surgeons was founded in New Spain in 1786, in compliance with the royal decree issued by Charles III; it was inaugurated in the City of Mexico on April 10, 1770, having the Hospital Real at its disposal for teaching purposes. The New Spain Royal College of Surgeons was the first in America and the third in the Spanish

GENERAL INFORMATION

THE Journal of the International College of Surgeons is published for the time being under the auspices of the United States Chapter of the International College of Surgeons, for the advancement of surgery and as a medium of publication for reports of research, *clinical observations and experimental* work in surgery, as well as to acquaint members of the International College of Surgeons throughout the world of its activities.

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Scientific Papers: The publication of scientific papers in the Journal is not limited to the Members and Fellows of the College. Any surgeon may submit original contributions, which will be considered by the Editorial Board for acceptance. Thus, while the Journal is the official organ of the International College of Surgeons, it is also an open forum for the expression of contemporary surgical advancement, thought and research. There is no discrimination as to those who may submit original papers; it is *the scientific value of the contribution that determines its acceptability for* publication.

Article I, Section V, of the Constitution of the College reads:

"It is strictly non-sectarian and non-political; it is decidedly against arbitrary restriction of merit and is free from prejudices, and will recognize the SURGEON and his accomplishments, and will not be influenced by his financial, political and other irrelevant status."

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All manuscripts must be typed, double-spaced, on one side of standard manuscript sheets; the left margin should be 1½ inches in width to permit proper editing. Manuscripts should bear the address of the author. No manuscript will be accepted for publication without consideration by the Editor-in-Chief and the approval of the Editorial Board.

One carbon copy should accompany the original paper. A **summary** must be given at the end of the article.

Contributions in a foreign language should be sent to Prof. Rudolf Nissen, Divanyolu, 105, Ortaköy, Istanbul, Turkey.

Anonymous contributions of any and all sorts will not be published.

PROGRESS IN UROLOGICAL SURGERY DURING THE LAST DECADE

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Ambassador from Mexico to the United States
Member of the Academia Mexicana de Cirugia, the Academia Nacional de Medicina and the Academia Nacional de Ciencias

MEXICO CITY, MEXICO, AND WASHINGTON, D. C.

PERHAPS in no other department of general surgery and its affiliated collateral branches has sound and substantial advancement been more consistently marked and rapid than in the realm of operative treatment of diseases of the genitourinary system. This fact is attributed in large measure to refinement in methods of diagnosis and more careful selection of cases, primarily in consequence of cystoscopy, radiography and procedures for estimation of functional capacity or sufficiency.

By the same token, few periods in the history of urology are more replete with brilliant achievements than that which will be reviewed in the course of the present survey. Only the more significant of these exploits will be discussed briefly in chronological order.

Visualization of the urinary tract by means of intravenous injection of certain substances has ever since its adoption as a routine practice constituted an invaluable aid for determination of functional activity. The original method of von Lichtenberg and Voelcker was in 1929 greatly facilitated by Hryntschak's technic of combined pyeloscopy, and intravenous or excretory urography was in the same year rendered possible by the discovery of uroselectan by Swick, Bins and von Lichtenberg. Investigation of functional activity of the urinary tract was further simplified by the *hydrophorograph* described by Trattner in 1930, the *cinex-camera* introduced in that same year by Jarre and Cumming, and the method of *serial pyelography* announced by Moore in 1932.

While the essential factor in *prostatectomy* by the method of Freyer, namely, enucleation of the gland, had until then been retained, Harris in 1929 materially improved the technic of the procedure by devising and inaugurating an ingenious plan of reconstruction of the prostatic cavity, this innovation representing, in the opinion of qualified authorities, one of the most important advances in prostatic surgery since the original report in 1900 of the method invented by Freyer. However, the year 1932 witnessed the almost general adoption of the method of transurethral resection as a substitute for the conventional operation of prostatectomy. The successful results obtained with the transurethral technic amply demonstrated the wisdom of this departure from long established precedent. Foley in 1933 presented a detailed description of his instrument for electroresection which he prosposed to employ for the operation previously performed with punch instruments. In the same year Herbet stated it as his conviction that electroresection had already been adopted and utilized in at least 75 per cent of cases of urinary obstruction caused by the prostrate gland, and this attested to the excellent reception accorded the procedure by urologists.

PROGRESS IN 1936

The succeeding triennium was characterized by a more or less universal

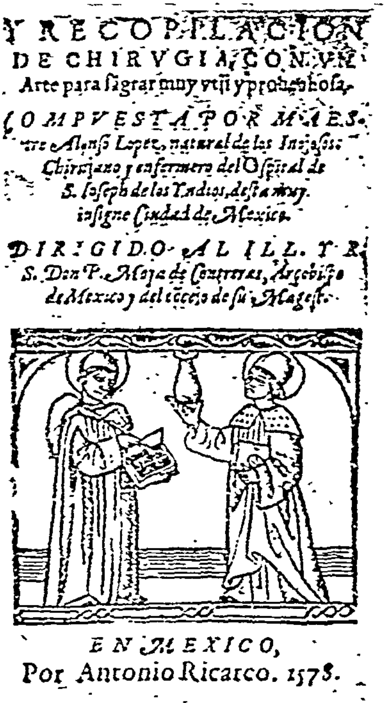
Editorials

CONTRIBUTIONS OF MEXICO TO SURGERY

SURGERY in the pre-Cortés period of Mexican life was essentially unimportant. In a society which was only moderately well organized, its culture being determined by the people who inhabited the region, and in a country where the copper age had not become definitely established, surgery proper could not exist; it was, at its best, practiced according to rudimentary, empirical methods, tinged with witchcraft and occasionally blotted with the blood of human sacrifices. Therefore, the oft repeated opinion of Fray Toribio de Benavente (Motolinía) regarding the skill of the Aztec *tetetzeles* lacks scientific foundation.

Leaving aside the pre-Cortés period of a nationally nonexistent Mexico, it naturally follows that we must begin this chronologic account with the completion of the Conquest (1521), a historical feat which registered the birth of a national individuality; this primary historic action was followed by the colonial period and the sorrowful process of the development of independent Mexico.

It was in reality after the Conquest was completed and Hernán Cortés, the Great Captain, began the national integration of Mexico, that Mexican surgery had its origin. In the subsequent colonial development, the viceregal city, capital of the Mexico of today, attained the privilege of being



Y RECOPILACION
DE CHIRVGIA, CON VN
Arte para ſãgrar muy vtil y prouechoſa.
COMPVESTA POR MAES-
tre Alonſo Lopez, natural de los Inojoſos:
Chirujano y enfermero del Oſpital de
S. Joſeph de los Indios, deſta muy
inſigne Ciudad de Mexico.
DIRIGIDO AL ILL. Y R.
S. Don P. Moya de Contreras, Arçobiſpo
de Mexico y del conſejo de ſu Mageſt.

EN MEXICO,
Por Antonio Ricarco. 1578.

Cover page of the first book of Surgery in America, *Suma Y Recopilacion De Cirugia*, by Alonso Lopez de Hinojosa, printed in Mexico 1578 by Antonio Ricarco. Contains 201 pages.

methods which utilize the intact ureter with the idea of asepsis have been proved to be primarily submucosal.

PROGRESS IN 1937

Early in 1937 Schneider and Wildbolz announced the outcome of experiments designed to elucidate the *alterations induced by denervation of the kidney* in an endeavor to render indications for the operation somewhat more definite. The "thermostromuhr" method devised by Rein was utilized. After the normal flow of blood for several hours through the kidney of a dog had been established and registered, the kidney was denervated. Both artery and vein were carefully freed of visible nerve fibers, chemical sympathectomy was omitted and the ureter was left intact. A uniform result was noted, namely, a brief period of contraction of blood vessels and diminished flow of blood, followed first by a period of instability, then an increase of flow of from one and one-half to two and one-half times the original flow. On immediate decapsulation, the flow was increased by one-fifth, while decapsulation alone without denervation produced an increase of one-fifth in the rate of flow. Total denervation was demonstrated by means of various well established reactions to which experimental animals were subjected, but chiefly by artificial respiration with air of high carbonic acid content. It was found that *the normal kidney reacted to a high carbonic acid content in the blood by a marked diminution in the flow,* despite a rise in blood pressure, while *in a denervated kidney a high carbonic acid content in the blood caused a marked increase in the flow of blood.*

In a contribution submitted in 1937 Moore described an improved method for *cystoscopic removal of ureteral stones*. Later during the same year McKay contrived an original type of dislodger, by utilizing the principle of multiple catheters, but substituting four long silk threads attached to a small whalebone bougie. McKay recommended that the instrument be passed beyond the stone, with the ureter well dilated, whereupon by pulling on the threads and holding the filiform bougie firmly it would become slightly bowed, the stone then being entrapped by twisting, and brought down into the bladder by traction. Moore subsequently modified this procedure by passing the filiform device carrying the threads well beyond the stone, even as far as the renal pelvis, then withdrawing it by traction only, with no attempt to induce bowing. The method thus perfected proved to be quite satisfactory when the ureter had been thoroughly dilated and a few cubic centimeters of sterile oil injected prior to insertion of the dislodger.

In the middle of 1937 Shih attracted the attention and interest of urologists everywhere by his report of the discovery of an exceedingly rare anomaly, so called *postcaval ureter*, the fifth thus far encountered at the time of operation. The kidney was found badly diseased, the upper portion of the ureter being greatly dilated, and lying close to the lateral border of the inferior vena cava. Instead of maintaining its lateral position, it passed posteriorly to the vena cava and then forward between the vena cava and the abdominal aorta, above their points of bifurcation. Winding anteriorly, it again crossed the vein, resuming its normal course to the urinary bladder. The portion of the ureter wound around the vena cava was not dilated and was intimately adherent to the great vessels. Nephrectomy was clearly indicated and was performed. However, Shih states that the procedure of choice, whenever possible, is to divide the ureter, disengage it from the vena cava and reestablish its continuity. Early recognition of the anomaly when it exists and prompt institution of operative correction are necessary to save the kidney.

Kingdom; in Spain the first institution of learning of this type was the one founded in Cádiz (between 1747 and 1748); the second was founded in Barcelona (1760).

Charles III enacted the writing of the statutes and by-laws for the New Spain Royal College of Surgeons, which were printed successively in Madrid (1791), Barcelona (1799) and Mexico City (1799). A leather-bound copy of this document is preserved in the library of the present University of Mexico School of Medicine.

In view of the fact that the most outstanding professors who founded the *Establecimiento de Ciencias Médicas* (1833), its dean included, were all alumni of the Royal College of Surgeons, Dr. Fernando Ocaranza considers that the present School of Medicine was derived directly from the Royal College, through the link constituted by the above mentioned Establishment of Medical Sciences.

Finally, we must note three complementary facts to this narrative of pioneering and achievement: the noteworthy performance of the extinct Mexican Surgical Society, which flourished magnificently in the dawn of the present century; the founding of the Mexican Academy of Surgery on January 13, 1933, and which at the present time is the supreme National institution of its type, the guiding spirit of the ancient School of Medicine, in which it is housed; and lastly, the establishment of the Mexican Chapter of the International College of Surgeons on March 20, 1939.

The creation of the Mexican Chapter of the International College of Surgeons will enhance the advancement of surgical history of Mexico. Following the invitation extended by the Mexican Government, the International Executive Council of the International College of Surgeons resolved unanimously on February 14, 1940, to hold the next International Assembly of the College in Mexico City from the tenth to fourteenth of August, 1941.

Mexican surgeons, the sons of a young country with a noble and ancient culture, look hopefully and with confidence into a future of greater and constantly increasing achievement of Mexico. Members of the College and Mexican chapter of the College and Mexican surgeons at large are looking forward with anticipation to a brilliant assembly in 1941 and cherish the hope of a genuine appreciation of the great Pasteur's teaching by surgeons of *all civilized lands*, "La science n'a pas de patrie."

Manuel A Manzanilla

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RIASSUNTO

Il progresso nella chirurgia urologica durante l'ultima decade

Riesaminando il progresso della chirurgia urologica durante l'ultima decade, l'autore discute la visualisazione del tratto urinario; il ristabilimento della chirurgia come metodo di cura; i risultati di esperimenti con l'anestesia, fra le quali l'anestesia segmentare peridurale; i principi applicati nell'impiatazione utere-intestinale; le alterazioni causate da denervazione del rene; e metodi migliorati del rimovimento cistoscopico di pietre ureterali, fra le quali l'uso della tenta incerata filiforma.

ANNUAL PRIZE ESSAY ON ANESTHESIA

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Essays must reach the International Secretary, Dr. Max Thorek, 850 W. Irving Park Blvd., Chicago, Ill., not later than May 1, 1941. They must be typewritten in English in manuscript form, double space, and must not exceed 5,000 words in length. The original must be accompanied by four carbon copies.

attitude of *extreme conservatism toward operations for the relief of genitourinary disorders*. A meticulous examination of existent sources of reference fails to reveal a signal advance in the field of urological surgery. Although the procedure of renal sympathectomy established by Papin and Ambard in 1924 had subsequently been employed most satisfactorily by Hess, Harris, Kidd and others, it was not immediately adopted and for a long time was not generally utilized. But in 1936 Gibson, after a careful study of the subject, asserted that the operation produced no deleterious effects, that it appeared surgically feasible alone or in conjunction with other procedures, and that it was indicated more or less positively in numerous conditions. *This statement served to restore the method to its former well merited estate.* In 1936 also Dambrin claimed credit for the invention and execution (in 1932) of an operation for total denervation of the kidney by complete section of its nerves from the sympathetic centers. Dambrin supplemented the incomplete procedures of decapsulation alone and instrumental denervation alone with the application of a preparation of phenol to both the decapsulated cortex and the renal pedicle.

Hryntschak in 1936 described his experiments involving the *healing power of the ureter following resection*, whereby he demonstrated that resumption of normal function after transverse section of a ureter is physiologically possible, and thus effectively opposed the widespread belief to the contrary. Hryntschak is of the opinion that the two chief requirements for healing of a transverse cut in the ureter are temporary diversion of the urine through nephrostomy, pyelostomy, or ureterostomy, and splinting of the injured ureter with a ureteral catheter.

The year 1936 was distinguished particularly by noteworthy *experiments with several anesthetics*. Tovell and Thompson proved that penthothal sodium is well adapted in urological practice for many cases where a general anesthetic is necessary, and that almost any type of instrumentation is practicable following induction of anesthesia by intravenous administration of that agent. Caporale presented an extremely novel method of anesthesia termed by his colleagues peridural segmentary anesthesia, and consisting of the injection into one of the last dorsal intervertebral spaces of about 30 cc of a relatively more concentrated anesthetic solution than that used ordinarily for local anesthesia. This solution rapidly spreads superiorly and inferiorly over from eight to ten vertebral segments, infiltrates the intervertebral canals along the spinal nerves, penetrates the latter and produces brief, intense, complete anesthesia of the respective region.

A report of the results of their study of the *rate of excretion and bactericidal potency* of phenylglyconic (mandelic) acid in urine was published in 1936 by Helmholz and Österberg. Through observation of the excretory rate following oral ingestion of the sodium salt by man and its intravenous injection into dogs, they established criteria for the concentration of the acid and the hydrogen ion concentration of the urine necessary for bactericidal action on numerous strains of organisms previously isolated from urine of persons with infections of the urinary tract.

Hinman and Weyrauch in 1936 undertook a critical study of different surgical principles applied in *uretero-intestinal implantation*. Of the total of eleven such principles comprised in their investigation the submucosal principle appeared to possess a distinct theoretical advantage and to show the best results in practice. During this study it was revealed that virtually all modern technical methods for the purpose in question include it either as the primary or the secondary principle, even the latest lationship, since the blood vessels have their normal origin; and (4) length of the ureter, being relatively short in congenital dislocation and of usual length in accidental dislocation.

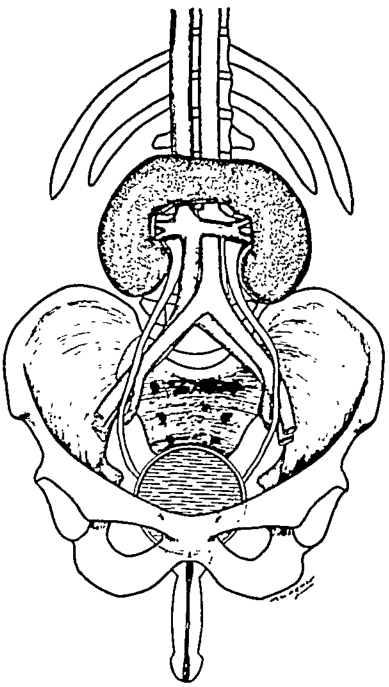

Fig. 1. Left. Superior renal symphysis, showing fusion of the upper poles. Kidney is horseshoe shaped, with inferior concavity.

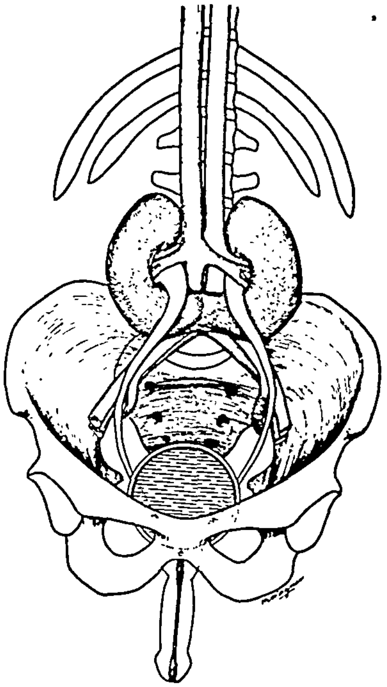

Fig. 2. Right. Inferior renal symphysis, showing fusion of the lower poles. Kidney is horseshoe shaped, with superior concavity.

RENAL SYMPHYSIS

Renal symphysis results from polar or marginal fusion of the kidneys; it can be classified as follows:

(1) *Superior,* fusion of the upper poles (fig. 1), the kidney being crescent or horseshoe shaped, with inferior concavity (very rare).

(2) *Inferior,* the result of fusion of the lower poles (fig. 2), the kidney being crescent or horseshoe shaped with superior concavity (relatively frequent).

(3) *Annular,* the result of fusion of the upper and lower poles, the kidney being ring shaped (very rare).

(4) *Discoid,* from fusion of the medial borders, the kidney being discoid or biscuit-shaped, i.e., constituting a single mass, with two pelves and two ureters, in a median prevertebral, pelvic or presacral position or in contact with the rectum or bladder.

(5) Unilateral, from fusion of superimposed kidneys, unilateral in location, with one kidney, usually the lower one, crossed over the other and provided with two ureters, two sets of blood vessels, two hila; fusion of the upper pole of one kidney with the lower pole of the other results in the sigmoid type (extremely rare).

In the present study I shall describe a roentgenographic observation of superior renal symphysis, the kidney being crescent or horseshoe shaped with inferior concavity.

This type of anomaly, which is very rare, is characterized by fusion of the upper poles of the kidney in the median line; the tissue of the union forms the isthmus, thick and wide or thin and nar-

At about the same time in 1937 Jarman and Scott introduced *avertin as a relaxing agent in the manipulative removal of ureteral calculi*. The calculus was recovered in all but two out of twenty-seven cases in which multiple catheters were employed in conjunction with instillations of a two per cent solution of avertin.

A number of other conspicuous attainments in the specialty of urological surgery during the decade which has just elapsed might be cited and summarized here. However, when the complete history of urology is finally recorded by the chroniclers of medical lore, many illustrious names and distinctive accomplishments which have perforce been excluded from our succinct résumé of the subject will receive well merited recognition and acknowledgment. Meanwhile, let us regard the solid progress which has characterized the continuous evolution of surgery of the genitourinary system as a presage of an even more glorious victory over disability and death from diseases of the latter in the future.

SUMMARY

In reviewing the progress of urological surgery during the last decade, the author discusses visualization of the urinary tract; the reinstatement of surgery among the recognized surgical specialties; experiments with anesthesia, among them peridural segmentary anesthesia; the principles applied in uretero-intestinal implantation; alterations induced by denervation of the kidney; and improved methods of cystoscopic removal of ureteral stones, among them use of the filiform bougie.

RÉSUMÉ

Le progrès de la chirurgie des voies génito-urinaires durant les dix dernières années

L'auteur discute la visualisation des voies urinaires; l'emploi de procédés chirurgicaux comme méthodes de traitement; les recherches sur l'anesthésie surtout l'anesthésie segmentaire péridurale; les principes de l'implantation urétéro-intestinale; les altérations déterminées par la dénervation du rein; les méthodes perfectionnées pour l'ablation des calculs urétéraux et l'emploi des bougies filiformes.

ZUSAMMENFASSUNG

Fortschritte in der urologischen Chirurgie im letzten Jahrzehnte

Bei der Durchsicht der Fortschritte in der urologischen Chirurgie in letzten Jahrzehnte bespricht Verfasser die Darstellung des urologischen Traktes, die Wiedereinsetzung der Chirurgie als Methode der Wahl, Resultate von Experimenten mit Betäubungsverfahren unter anderem mit periduraler, segmentärer Betäubung, die Grundsätze für Ureterentransplantation in den Darm, Veränderung nach Entnervung der Niere, und verbesserte Methoden zur zystoskopischer Entfernung von Ureterensteinen, unter anderm Verwendung von filiformen Bougies.

SUMARIO

Progreso en cirugía urológica en la ultima decada

Al revisar el progreso de la cirugia urologica durante la ultima decada, el autor discute visualizaciones del tracto urinario; de restitución de cirugía como un método de tratamiento; resultados y experimentos con anestesia, entre ellas anestesia segmentario peridural; el principio aplicado en implantación uretero-intestinal; alteraciones inducidas por denervación de los riñones; y métodos mejorados de extraciones de piedra por método cistoscópico, entre ellos el uso de bugias filiformes.

laboration between the attending physician and the roentgenologist is therefore indispensable.

Consultation with Dr. Bernardo Reina preceded the final diagnosis of the case of M.P.; an intravenous pyelogram made of this patient is shown in Fig. 3. The film was taken with the patient in the dorsal decubitus, 15 minutes after uroselectan was injected intravenously. The right kidney shadow was in usual position, with the renal pelvis at the level of the upper border of the third lumbar vertebra; the upper pole was slightly veiled by gases in the transverse colon. The left kidney shadow was better defined; the upper pole was situated immediately below the eleventh rib (projection of its dorsal extremity); the lower pole was at the level of the left transverse apophysis of the third lumbar vertebra; the lumbar spine, which was scoliotic, presented an arch with its convexity to the left, dislocating somewhat the lower, but not the upper, pole of the kidney; the body of the kidney was in rotation with the renal pelvis projected axially and with the ureter descending nearer the lateral than the medial border of the kidney. Roentgenologic interpretation read: Lumbar scoliosis with dislocation of the lower pole of the left kidney, without any change in the position of its upper pole. We concluded that the dislocation of the upper pole was apparently due to the existence of superior renal symphysis, a condition which caused the rotation, this, in turn, resulting in the altered position of the shadows of the renal pelvis and ureters, as described above.

The patient consulted me because of indigestion, due, it was thought, to a catarrhal condition of the biliary passages. Cholecystography revealed nothing abnormal. Examination of the bile (Meltzer-Lyon) showed that it was slightly turbid in appearance, with copious sediment, many crystals of biliary salts, numerous filaments of mucus, leucocytes, epithelial cells and some erythrocytes; the bile culture disclosed colonies of colon bacilli and staphylococci.

Genitourinary examination (Heitz-Boyer method) disclosed no pathology of the genitalia. Very few colon bacilli were found in the urine from the left ureter. The amount of urine obtained from the right ureter was slightly more than that obtained from the left. A urogram (after the previous injection of a contrast medium) was interpreted with difficulty, but it established the existence of a renal anomaly due to malformation, which did not require surgical interference.

The difficulty of interpreting the roentgenogram and the rarity of the congenital malformation observed in this case are the theme of this study. Correct diagnosis was established by coordinated evaluation of the physical and roentgenologic criteria.

SUMMARY

Kidney anomalies vary as to number, size, shape and form. They result from congenital malformations or errors in position. Congenital dislocation is distinguished from accidental dislocation by the position and shape of the kidney, its vascularization and the length of the ureter. Renal symphysis results from fusion at the poles or margins of the kidneys. This fusion may be superior, inferior, annular, discoid or unilateral. In the case described, the roentgenograms showed the lumbar spine to be scoliotic, arching to the left; the lower pole of the left kidney was displaced to the left; the upper pole was in normal position; the body of the kidney and the ureter were displaced laterally. Operation was not performed.

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SUPERIOR RENAL SYMPHYSIS

WITH CASE REPORT

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ANATOMICALLY there are two kidneys, right and left, symmetrically situated on either side of the spine at the level of the last two dorsal vertebrae and of the second or third lumbar vertebrae, with the right kidney approximately two centimeters lower than the left The upper poles, which are larger than the lower poles, are about 4 cm from the median line, while the lower poles, which are more elongated, may be as much as 6 cm from the median line

Kidney anomalies may be classified according to (1) *number* agenesia, single kidney, supernumerary kidney (exceptional), (2) *size* atrophy, general hypertrophy, localized hypertrophy, (3) *shape* fetal or lobulated kidney, plain, rounded, lengthened, flattened, crescent or horseshoe shaped, annular, sigmoid, discoid or biscuit shaped, twofold, sloped, constricted with bifurcation of ureter, etc , (4) *position* low lumbar, sacroiliac, pelvic ectopia, unilateral, bilateral, homolateral, crossed ectopia

Anomalies of shape are varied and occur frequently Some authors consider that many in this group are congenital malformations caused by fusion of the kidneys.

These anomalies arise from (a) errors of formation and (b) errors of position

Certain anomalies of malformation are of surgical interest congenital absence of one kidney (with greater development of the single kidney), bilateral agenesia, supernumerary kidney in the median line between the two kidneys, renal symphysis (to which further reference will be made), double kidney with or without double ureters (usually unilateral and of interest because of its pathological complications), hydronephrosis, hydropyonephrosis, tuberculosis, tumors (rare, according to Mertz, Braasch, Young and Davis), fetal kidney in which the lobulated form with sulci persists in the adult (simulating a double kidney when the sulci are deep)

Anomalies due to position having surgical interest are congenital ectopia of true kidney ectopia (low lumbar, sacroiliac, pelvic), unilateral or bilateral, direct (homolateral) or crossed, congenital mobile or floating kidney (Zondek)

A dislocated kidney frequently becomes diseased, a fact that has induced some surgeons to remove it in order to frustrate affections of the opposite, healthy kidney Pelvic renal ectopia may cause dystocia

Congenital dislocation of the kidney is distinguished from accidental dislocation by (1) the position of the kidney, which is fixed in congenital dislocation, mobile in accidental, (2) shape, this being more or less altered in the congenital type, normal in the accidental, (3) vascularization, the renal artery springing from the nearest trunk of the lower end of the aorta, from one of the iliac arteries or from the middle sacral artery in the congenital type, whereas in the accidental type the vascular pedicle is elongated in proportion to the degree of dislocation, without change of vascular re-

Nel caso descritto, la spina dorsale lombare era scoliotica, incurvando alla sinistra; il polo più basso del rene fù spostato alla sinistra, ma il polo superiore si trovava in posizione normale; il corpo del rene era in rotazione e l'uretere fù spostato lateralmente. La chirurgia non fù indicata.

* * *

ABBOTT LABORATORIES FELLOWSHIPS IN CHEMISTRY

For the academic year 1940-41, Abbott Laboratories has established fellowships in several universities with important departments of organic chemistry and biochemistry. The fellowships, carrying stipends of $650 per year, will be available to graduate students in the last or next to last years of graduate work leading to the doctorate degree. The recipients, who are to be selected by the universities in which their work is being done, are not limited as to the subjects on which they will work.

The object of the fellowships is to provide means for the carrying on of additional scientific work in American universities. The future progress of chemistry in this country will depend upon the availability of well-trained men, Abbott Laboratories in establishing these fellowships to lend encouragement in these general fields.

Grants will be made to the following universities: in organic chemistry—Cornell, Harvard, Illinois, Michigan: in biochemistry—California, Columbia, Cornell.

—o—

Dr. Wilbur A. Sawyer, director of the International Health Division of the Rockefeller Foundation, was awarded the first Leon Bernard Prize at a dinner of the League of Nations Association on January 29. The presentation was made by former Surgeon General **Hugh S. Cumming.** The award consists of a bronze medal and the sum of 1,000 Swiss francs. It is an international prize to reward practical achievements in the field of social medicine and its purpose is to perpetuate the memory of Professor Bernard, late member of the League of Nations Health Committee, by which the Leon Bernard Foundation was established in 1934. Dr. Sawyer was honored because of his achievements in the field of yellow fever and his success in extending medicosocial protection to the populations of many countries.

Dr. Jesse W. Bowers, F.I.C.S., of Fort Wayne, Ind., secretary of the Indiana State Board of Medical Registration and Examination, has been appointed a member of the National Board of Medical Examiners. The National Board will hold its twenty-fourth anniversary meeting in New York City on June 12, when Dr. Bowers will be inducted as a member.

—o—

Dr. Lionel Ernest Howard Whitby has been awarded the John Hunter Medal and Triennial Prize by the Royal College of Surgeons of England for research work in "bacteriology with special reference to sulphonamide compounds."

THE NEXT INTERNATIONAL ASSEMBLY OF THE INTERNATIONAL COLLEGE OF SURGEONS WILL BE HELD IN MEXICO CITY, MEXICO, AUGUST 10-14, 1941. DETAILS IN SUBSEQUENT ISSUES OF THE JOURNAL.

row, parenchymatous, fibrous or cellular This anomaly rarely requires surgical treatment, but some interventions may become necessary if pathological conditions are present, nephrotomy or pyelotomy because of lithiasis (Uffreduzzi), or partial nephrectomy because of pyonephrosis tuberculosis tumors etc may become indicated (Socin) Abnormality in the relation of blood vessels increases the danger of hemorrhage In partial extirpation of an anomalous kidney one must proceed cautiously because a clear line of demarcation does not always exist (Thorek)

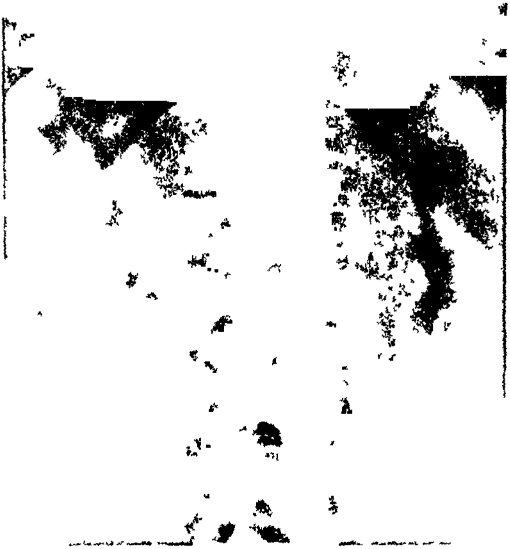

Fig 3 Roentgenogram of M P Scoliosis of spine deviated to the left Lower pole of left kidney dislocated to left left kidney rotated

Malformations may be encountered at operation or at autopsy, or they may be diagnosed by roentgenograms Nevertheless interpretation of roentgenograms of the kidney is often difficult because of lack of density, so that the contours are not clearly visible and, in addition, they are often altered by neighboring organs The kidney when visible is typical, being of uniform density and in appearance differing but little from that of the psoas muscle it is slightly opaque, and its contours in the region of the lower pole are sufficiently visible although the upper pole is distinguished with more difficulty because of the various abdominal shadows surrounding it The roentgenographic diagnosis alone can be only topographic and descriptive but when the roentgenographic and clinical diagnoses are coordinated, much information is gained and light is thrown on the subject Col ing to Forgue, this may be one of several types. It may be continuous, with systolic reinforcement; biphasic, that is, with strong systole and weaker diastole; or simply systolic in the blood vessels outside the aneurism. With compression of the tumor the murmur, pulsation and thrill disappear.

The tumor is painless, even to pressure of the hand; but it may cause annoyance to the patient, making sleep difficult, principally because of the beating sensation which is constantly present. It is accompanied by tinnitus, a sensation of palpitation and intense headache.

The sites of predilection for these aneurisms are the scalp, face, hands and feet. They are usually superficial; the literature contains no references to cirsoid aneurisms of the viscera or other organs, but it is reasonable to suppose that they may develop in any other part of the body in which vascular tissue is present.

In regard to frequency, it can be said that just as angiomas, arterial or venous, are very frequent, primary giant cirsoid aneurisms are extraordinarily rare. In the 12 years of my practice in the surgical service of the General Hospital, Mexico City, I have seen about 5,000 surgical patients; I have treated, in addition, 1,000 surgical cases in private practice. Among these 6,000 patients I have found only one case of primary giant cirsoid aneurism.

A cirsoid aneurism sometimes develops with extraordinary speed, but usually it develops slowly and always by extension. It ultimately causes the overlying skin to ulcerate, producing severe hemorrhages which may result in death. Most authors agree that these vascular entities never heal spontaneously and therefore, to prevent loss of time, immediate treatment is advised.

Clinically, an aneurism is diagnosed easily. It is to be differentiated from arteriovenous aneurism and angioma, which are common. An arteriovenous aneurism affects the large vessels and has a single communication, pressure upon which causes the beat to disappear (Terrier's sign); in cirsoid aneurism, the beat disappears only when pressure is exerted over the entire surface of the tumor. Angiomas are congenital and appear as simple red or bluish areas, or as erectible tumors, but they are never pulsating on palpitation or auscultation.

Various types of treatment have been proposed to cure cirsoid aneurism—caustic pencils with zinc chloride, applications of iron perchloride, coagulating injections in situ, compression, distant ligatures, electropuncture, roentgenotherapy and lastly, extirpation. This last method is the procedure of choice. When cirsoid aneurisms are of the giant variety, partial, repeated excision is recommended until complete cure is attained.

CASE REPORT

Marcos M. C., Mexican, 37 years old, married, workman in a textile factory, entered the hospital May 2, 1939, with the diagnosis of left frontopalpebral angioma (fig. 1).

History. The family history was negative. He had typhus at the age of 10. Seven years previous to the present examination he had suffered trauma of the left frontal region. His present complaint was pain in the left half of the face; an irregular tumor was present in the frontal, superciliary and palpebral regions of the left side. This tumor was first noticed seven years ago following contusion of the left frontal region; a hematoma had appeared, which lasted only a week. A month later a small round tumor the size of a chickpea was noticed; it was soft and painless on pressure. During the next three years it increased slowly in size until it reached the size of a large orange. At that time an operation resulted in a reduction in the size of the tumor, but it was not removed completely (fig. 2). A month later spontaneous rupture of the tumor occurred, with copious hemorrhage, one liter of blood being lost, according to the patient. Ligation stopped the hemorrhage. Following this emergency operation, the tumor remained stationary and no further accidents occurred during the succeeding three years. About a year before the present admission several more tumors appeared; these surrounded the primary tumor, the latter also showing increased

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RÉSUMÉ

Symphyse renale supérieure

Les anomalies des reins varient par rapport au nombre, aux dimensions et a la conformation de ces organes Ces anomalies sont le résultat d'erreurs de développement et de déplacement Les dislocations congénitales se reconnaissent par la position et par la forme au rein, par sa vascularisation et par la longueur de l urétere Sous tous ces rapports, elles different des déplacements acquis La symphyse rénale resulte de la fusion des pôles ou des côtés des reins La fusion peut être supérieure, inférieure, annulaire, discoide ou unilatérale Dans le cas decrit par l'auteur, la region vertébrale lombaire etait scoliotique, avec convexite à gauche, le pôle inférieure du rein etait luxe à gauche, mais le pôle superieur etait en position normale, le corps du rein etait en etat de rotation et l uretere etait deplace lateralement Une intervention chirurgicale n'était pas indiquee

ZUSAMMENFASSUNG

Obere Nierenverschmelzung

Nierenanomalien wechseln an Zahl, Sitz, Form und Art Sie sind die Folge von Entwicklungs oder Stellungstorungen Angeborne Verschiebungen lassen sich unterscheiden von traumatischen durch Stellung und Form der Niere, Blutversorgung und Lange des Ureters Eine Nierenverschmelzung ist die Folge der Vereinigung an den Polen oder an den Randern der Nieren Diese Vereinigung kann eine obere, untere, ringformige, kuchenformige oder einseitige sein Im vorliegenden Falle bestand eine linksseitige Skoliose Der untere Nierenpol war nach links verschoben, der obere Pol dagegen in normaler Stellung Die Niere selbst war gedreht und der Ureter nach aussen verlagert Ein chirurgischer Eingriff war nicht angezeigt

SUMARIO

Sinfisis superior renal

Las anomalias de los riñones varian con respecto a numero, medida y forma, ellos resultan de errores en formación y posición Dislocación congénita son distinguidas de dislocaciones accidentales por la posición y forma del riñon, su vascularización y el largo del ureter Sinfisis renal resulta de la fusion de los polos ó margines de los riñones Esta fusion puede ser superior, inferior, anular, en forma de disco ó unilateral En el caso descrito la espina lumbar era escoleótica, arqueando hacia la izquierda, pero el polo superior estaba en posición normal, el cuerpo del riñon estaba en rotacion y el ureter estaba desplazado lateralmente Cirugia no fue indicada

RIASSUNTO

Sinfisi renale superiore

Anomalie dei reni variano in quanto a numero, dimensione, figura e forma risultano da errori in formazione o posizione Lussazioni congenite si distinguono da lussazioni accidentali per la posizione e la forma del rene, il suo vascularizzazione e la lunghezza dell' uretere La sinfisi renale risulta dalla fusione ai poli o margini dei reni Questa fusione puo essere superiore, inferiore, anulare, discoide, o unilaterale

growth. Invasion of the adjacent tissues followed until the superciliary, palpebral and anterior parts of the temporal regions of the left side were affected (fig. 3-5). Eight months before admission to the hospital, neuralgic pain, continuous and without radiation, appeared at the site of the tumor and extended to the lower half of the face. Fortunately, the neuralgia lasted but a short time. Finally, the patient developed total loss of vision of the left eye.

Examination. The patient was of fair physical development. His height was 1.7 m. and his weight, 72 kg. The blood pressure was 120/65; pulse, 60, full and of normal rhythm. A tumor occupied the frontal, superciliary and palpebral regions, the anterior half of the temporal and the left anterosuperior parietal regions. It was irregular and nodular, giving the impression of being formed of a group of tumors. Soft and elastic, it could be compressed easily with the hand, but it resumed its shape after pressure was removed. There was synchronous pulsation. The volume increased when the patient lowered his head. There was no thrill or murmur. The adjacent tissues were furrowed by varicosities connecting with the tumor. The rest of the scalp pre-

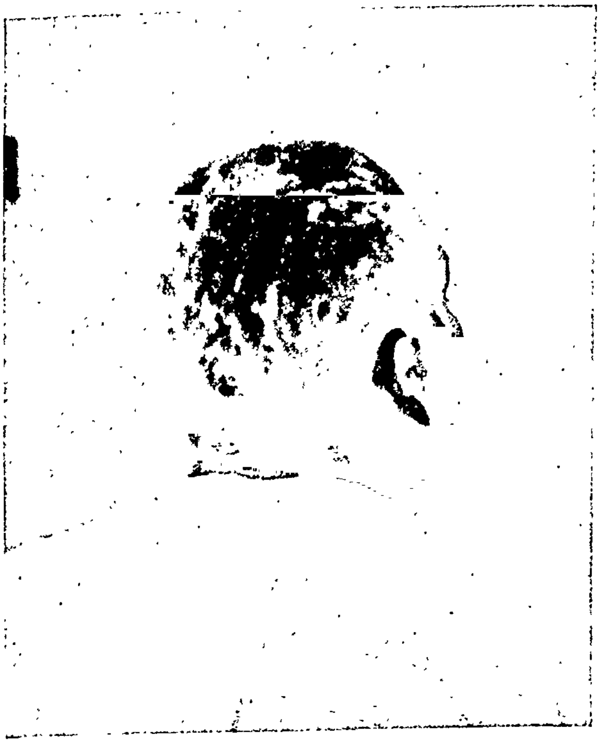

Fig. 5. Posterior view, showing right side unaffected.

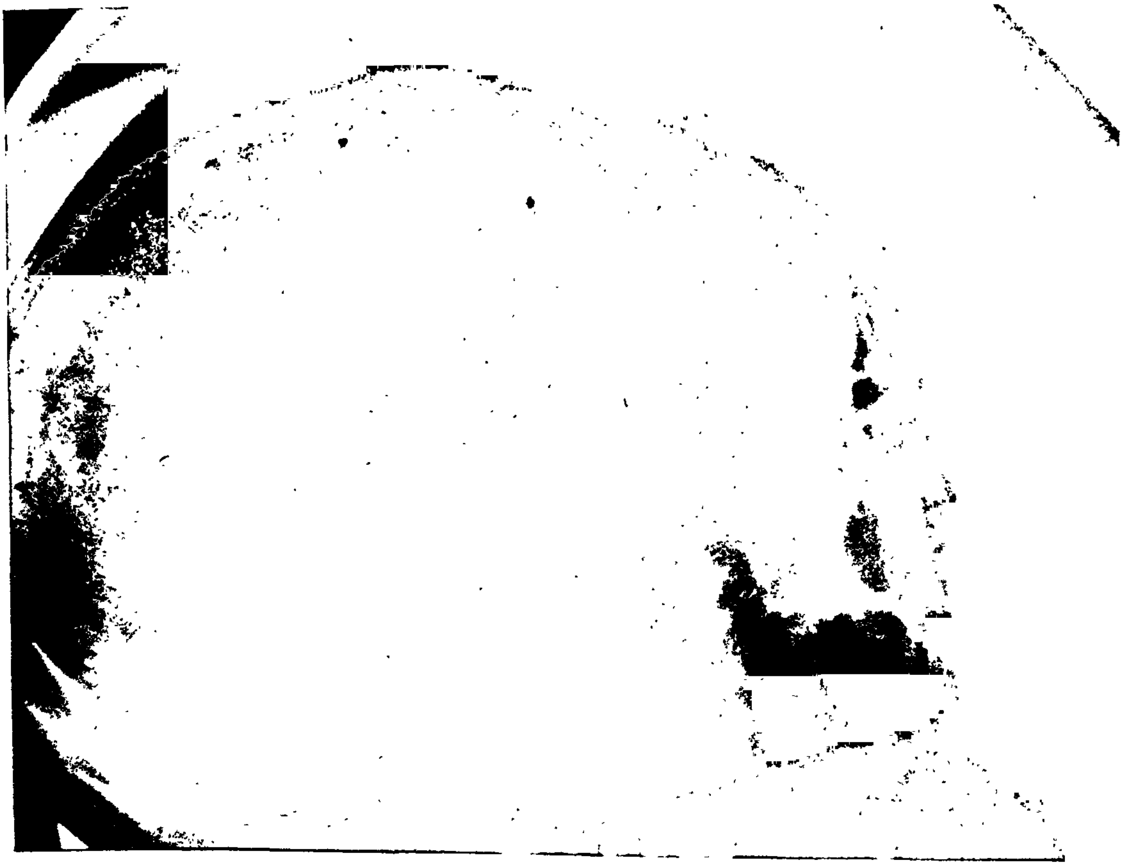

Fig. 6. Roentgenologic study of skull, lateral view, showing increased density of bone in affected area.

PRIMARY GIANT CIRSOID ANEURISMS

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GIANT primary cirsoid aneurisms are seen but rarely, and while their diagnosis presents few, their treatment presents many difficulties. It is still a question as to whether they should be considered as aneurisms proper or as vascular tumors. Virchow, believing them to be tumors of the blood vessels, called them racemose arterial angiomas or *Renkenangiomas*. Dupuytren descriptively termed them arterial varices, while Gosselin named them cirsoids, from the Greek *cirso,* meaning varix According to Delbet, they are characterized, not only by localized vascular induration and dilatation, but also by the establishment of numerous abnormal communications between the arteries and veins and more especially between the smaller branches and capillaries. Contemporary anatomic and pathologic studies confirm Delbet's findings.

In the cirsoid aneurism the earliest pathologic communications are between the arterioles and the veins. While cirsoid and arteriovenous aneurisms closely resemble each other, two characteristics distinguish them as shown by Delbet: Whereas in the cirsoid aneurism the communications are multiple and involve the capillaries, in the arteriovenous aneurism the communications are single and usually involve the larger vessels.

The tumefaction can be divided into two parts—the cirsoid itself and the portion consisting of the dilated afferent and efferent vessels. In a cut section the cirsoid presents the aspect of an areolar and cavernous body containing numerous cavities of variable size, 3 mm. or less in diameter. The walls of these cavities may resemble the walls of arterioles of medium caliber, lined with columnar epithelium and surrounded by three thin tunics which contain little elastic tissue; or they may resemble veins with an endothelium of polyhedral cells surrounded by muscle and connective tissue fibers.

The tumor, when covered with skin, has the appearance of a cluster of worms because of the many twisted, expanded and contracted afferent and efferent veins and arteries.

In regard to its origin, de Saint Germain stated, in 1844, "On this point everything is obscure and ill defined." Basset, writing at the present time, stated, "We do not know a great deal more today."

Usually it is considered to occur secondary to a congenital arterial angioma or more rarely to a venous angioma. Trauma is believed to be the inciting factor because it results in rupture of the capillaries and brings about communication between the arterioles and veins. Once communication is established, dilatation of the veins, both afferent and efferent, ensues. Some writers, among them Basset, believe that inflammation as well as trauma is necessary for their production.

Grossly a cirsoid aneurism is an irregular, somewhat diffuse, elevated tumor lying under the skin, which is tinged blue. It is relatively soft and partially compressible, returning quickly to its previous size with the removal of pressure. On palpation pulsations and a thrill (Hunter's thrill) will be felt synchronous with the arterial beat, and the impression transmitted to the examining hand is that of a mass of worms A blowing murmur can be [illegible]. auscultation over the aneuris

OPERATION. In accordance with the therapeutic indications stated previously, the tumor was extirpated in five stages, on May 18, June 16, July 15, August 5 and August 23, 1939. The patient left the hospital September 23, completely cured.

The operations consisted of rapid and partial extirpation of each of the tumors, with immediate suture of the scalp to stop bleeding. An electric bistoury was used first, but since this had no advantage, the metal one was used subsequently. Postoperatively, several transfusions of blood (250 cc. each) were given. In the last operation, performed by an ophthalmic surgeon, Dr. Lino Vergara, the left eye was enucleated and the left upper lid was resected, this harboring the only remaining part of the tumor. Dr. Genaro Márquez, who had referred the patient, assisted in the first four operations.

SUMMARY

Cirsoid aneurism is a rare affection. The author has seen only one case among 6,000 surgical cases treated during the last 12 years. It is usually considered to occur secondary to a congenital angioma. Trauma may be the inciting factor. The case here reported developed following trauma, but the previous existence of angioma was not detected. The invasion of the eye necessitated enucleation. Recovery followed. The treatment of choice is excision with a scalpel in one or several stages. The prognosis is always serious.

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RÉSUMÉ

Anévrisme cirsoide géant primaire

Cette affection est rare. L'auteur n'en a rencontré qu'un cas dans une série de six mille cas chirurgical traités durant les douze dernières années. La plupart des auteurs sont d'avis que ces anévrismes sont secondaires à des angiomes congénitaux. Un traumatisme peut être le facteur provocatif. Le cas de Garcia suivi un traumatisme. Il n'y avait pas d'angiome pré-existant. L'oeil fut énucléé. Guérison. Le traitement de choix est l'ablation en plusieurs temps. Le pronostic est toujours grave.

ZUSAMMENFASSUNG

Primäres Riesen-Cirsoid-Aneurysma

Cirsoidaneurysma ist eine sehr seltene Erkrankung. Der Autor hat innerhalb 12 Jahren unter 6000 chirurgischen Fällen nur eines gesehen. Es ist gewöhnlich als sekondär nach einem angeborenen Angiom betrachtet. Trauma kann der auslösende Faktor sein. Der hier aufgeführte Fall entwickelte sich nach einem Trauma, aber die Existenz eines vorhergehenden Angiomas konnte nicht nachgewiesen werden. Die Invasion des Auges machte eine Enucleation nötig. Heilung folgte. Wahlbehandlung ist blutige Excision in einer oder mehreren Sitzungen. Die Prognose ist immer zweifelhaft.

SUMARIO

Aneurisma cirsoideo gigante primario

Aneurisma cirsoideo es una afección rara. El autor ha visto solamente un caso entre 6000 casos quirúrgicos tratado durante los 12 ultimos años. Es usualmente considerado que ocurre secundariamente á un angioma congénito. El caso repotado aqui se desarrollo siguiendo á un traumatismo, pero la existencia previa de un anioma no fué detectado. La invación del ojo necesitó enucleación. Mejoramiento siguió. Tratamiento á escoger es excisión con un bisturi en uno ó mas tiempos. El prognostico es siempre serio.

GENERALIZED SPINAL ANALGESIA

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WHEN I was studying medicine in 1908, spinal anesthesia was the subject of lively discussion. This procedure had been introduced a few years before, and thanks to the work of Corning (U.S.A.), Bier (Germany) and Tuffier (France) it was becoming widely recognized. In the city of Oaxaca on July 2, 1900, Drs. Ramon Pardo, Luis Flores Guerra, Herminio Acevedo and Manuel Pereyra Mejía were among the first surgeons in Mexico to accept and practice spinal anesthesia. In Mexico City the first thesis on the subject was written by Everardo Landa and Adalid y Castillo. Aureliano Urrutia and Julian Villarreal were among the most ardent advocates of the method. Since that time spinal anesthesia has been so widely practiced in Mexico that this country can claim a *lieu d'honneur* in its history and advancement.

When spinal anesthesia was first practiced, it was resorted to only in operations on the abdomen and lower extremities; instances in which it was used for operations on the thorax and upper limbs were rare, indeed. The possibility of employing it in surgery of the head, neck and thorax was considered by many, among these being Chaput (1901), le Filliatre (1901-1904), Jonnescu (1908) and others. In Mexico those who attempted to use it in various regions were Villarreal, López, Urrutia, Adalid y Castillo, Padilla and Moreno.

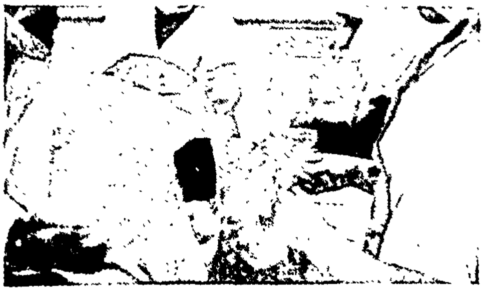
Since 1908 I have been studying generalized spinal analgesia, and the results of my investigations have appeared in various theses published under my preceptorship, such as: "Supraspinal Analgesia," Vincente Meza (Mexico City) 1917; "General Analgesia by Injection of Cocaine in the Lumbar Spine," Enrique Rodarte (Mexcio City) 1918; "Experimental Questions on Spinal Anesthesia," Fernando López Clares (Mexico City) 1929; and "Generalized Spinal Anesthesia, Koster Method," Julio Z. Garza Cantú (Mexico City) 1935. All these are on the subject of general analgesia. I shall now present the results of 30 years of study. I shall sketch briefly the history of spinal analgesia, point out priority and describe technical details.

REVIEW OF LITERATURE

Chaput[1] stated, in 1901, "Most authors employing cocaine anesthesia in the lumbar region admit that it is useful for operations on the lower limbs, pelvis and lower part of the abdomen. . . . I agree with Tuffier in regard to operations on the abdomen and thorax. . . . Moreover, I believe that Tuffier's method can be easily applied to operations on the upper limbs and perhaps to head operations." In this article he described three major operations which he had performed on the upper extremities by means of spinal anesthesia, with cocaine. The first operation was a resection of the elbow; the second, resection of the olecranon; the third, amputation of the hand. In the first two, anesthesia was obtained in 9 to 11 minutes; in the third, anesthesia was incomplete, reaching only the third rib and the patient complained of pain; however, his complaints were mild and there was only a slight degree of tenseness. The writer stated that the cocaine had facilitated the operation and that without it the amputation would have been impossible, especially in a nervous and timid patient. He also re-

accidents; that one need not be alarmed by pallor, perspiration or chilling on the part of the patient; and that these reactions are but the natural sequelae of high anesthesia. He advised no medication to increase systolic tension. The only contrindication to spinal anesthesia, in his opinion, is local infection at the point of injection. He had four failures, and in his opinion, in none of these was spinal anesthesia responsible for the failure.

Labat, in 1930, presented a slightly different technic, whereby morphine and scopolamine are injected before operation. For operations above the diaphragm the puncture is made between the twelfth dorsal and first lumbar vertebrae, with the patient seated; immediately after the injection he is placed in the Trendelenburg position, which is maintained for three or four hours after the operation is completed. French novocaine or neocaine, 10 to 20 cg. in 8 cc., is used, the injection being reinjected in operations above the diaphragm. Very rarely is general anesthesia produced by this method.



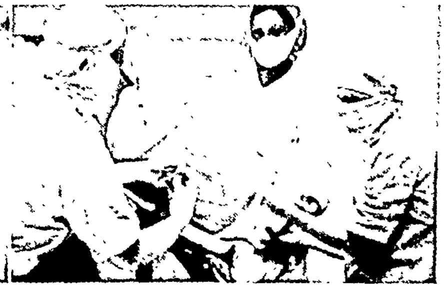


Fig. 1. Left. Spinal puncture with patient in right lateral decubitus. Puncture may be practiced, if preferred, with patient in vertical position; afterwards patient is inclined at an angle of 45°.

Fig. 2. Right. Patient inclined at angle of 45°. Only in this position must anesthetic be injected.

Veher, in 1931, made studies to determine the amount of novocaine needed to produce anesthesia of the head without causing paralysis of the cardiac or respiratory centers. He concluded that those centers are very resistant to the action of novocaine. He pointed out that whereas a dose injected into the spinal canal is tolerated, this same dose is not tolerated if injected into the cisterna magna. He believed the Trendelenburg position to be mandatory to avoid cerebral anemia. Veher used 20 to 24 cg. of novocaine in 3 cc., diluted to 6 cc., and made the injection in the second lumbar space. The Trendelenburg position (at an angle of 10°) was maintained from 4 to 24 hours after the operation.

Maxsson stated that the injection of 160 mg. in the sixth dorsal space produces sensory blockage of the entire body and motor blockage below the sixth dorsal vertebra, producing general anesthesia.

From this review, it will be observed that various procedures have been used for spinal anesthesia. Some of them, based on the level of the puncture (those of Tait and Caglieri, Morton, Jonnesco) have been abandoned because of resulting fatalities. Others, such as le Filliatre's method, decrease the tension of the cerebrospinal fluid, a method which I have used frequently, and even if fatalities do not occur, anesthesia is not always produced. Delmas' method, based on the speed with which the fluid is injected, in my experience did not yield the results claimed for it by its originator. The remaining procedure has as its basis the effect of the Trendelenburg position assumed immediately *after* the injection, the claim being that this position increases the diffusion of the anesthetic and prevents cerebral anemia.

RIASSUNTO

Aneurisme cirsoidi primarie gigante

L'aneurisma cirsoide è una malattia molto rara. L'autore ha visto solo un caso fra 6000 casi chirurgici trattati negli ultimi 12 anni. Ordinariamente, l'aneurisma cirsoide occorre secondariamente a un'angioma congenitale.

Il trauma può essere il fattore causativo. *Il caso qui riportato sviluppò dopo* il trauma ma l'esistenza precedente di un'angioma non fù scoperta. L'invasione dell' occhio necessitò l'enucleazione. Guarigione seguì. Il trattamento migliore è la recisione col bistouri in uno o parecchi stadii perativi. La prognosi è sempre seria.

PAST PRESIDENTS HONORED

Living past presidents of the Northern Medical Association of Philadelphia were guests of honor at a testimonial banquet given by the Association March 18 at the Hotel Touraine, Philadelphia. Guest speakers were **Dr. W. Wayne Babcock,** F.A.C.S., and the **Hon. Charles Grakelow,** both of Philadelphia. Among the past presidents honored were **Drs. David Riesman** (president in 1902); **Thomas R. Currie** (1904); **Israel Binder;** Moses Behrend, F. A. C. S., F. I. C. S. (1916); **A. C. Morgan; Bernard Mann,** F.A.C.S.; **M. Bernstein; B. Ulanski; V. R. Manning;** and **Hyman I. Goldstein** (1939).

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Dr. Francisco Fonseca Garcia, secretary of the Mexican chapter of the International College of Surgeons, has been decorated by the French Government with the Academic Palms.

Professor E. Maragliano, professor emeritus of clinical medicine in the University of Genoa, founder of the first Italian institute for scientific and practical studies on tuberculosis, has died at the age of 91 years.

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Dr. James D. Bruce, of the University of Michigan, who was chosen president-elect of the American College of Physicians last year, was inducted into the office of president at the congress of the College held in Cleveland in April. He succeeded **Dr. O. H. Perry Pepper,** of Philadelphia. **Dr. Roger I. Lee,** of Boston, formerly professor of hygiene at the Harvard Medical School, was chosen president-elect.

Dr. Elliott P. Joslin, clinical professor of medicine, emeritus, at the Harvard Medical School, has been named successor to the late **Dr. Harvey Cushing** as honorary chairman of the Division of Medicine and Public Health of the President's Committee on University [illegible]opment. The Committee is planning [illegible] additional endowment for the Medical School of Yale University.

REQUESTS FOR INFORMATION AND APPLICATIONS FOR [illegible] MEMBERSHIP, MEMBERSHIP OR FELLOWSHIP IN THE INTER[illegible] COLLEGE OF SURGEONS SHOULD BE ADDRESSED TO [illegible] OSBORNE, BUSINESS SECRETARY, 2543 [illegible]

ZUSAMMENFASSUNG

Allgemeine Spinalanästhesie

Die Entwicklung der Spinalanästhesie ist in geschichtlicher Reihenfolge betrachtet. Der Autor beschreibt seine persönliche Technik und hebt die Art und Weise in der sich seine Technik von anderen unterscheidet hervor. Er führt 505 Operationen an Kopf, Nacken und Brustkorb auf die er mit seiner Technik ausgeführt hat.

SUMARIO

Analgesia Espinal Generalizada

Un estudio cronológico de la evolución de anestesia espinal generalizada es hecho. El autor describe su método personal y llama la atención en la manera que su método se diferencia de los demas. El anota 505 operaciones en la cabeza, cuello y torax que él ha hacho de acuerdo á su técnica.

RIASSUNTO

Analgesia spinale generale

Uno studio cronologico dello sviluppo dell'anestesia spinale generale è fatto. L'autore descrive la sua tecnica personale e dimostra le maniere nelle quali il suo metodo è diverso dei metodi degli altri. L'A.compila una lista di 505 operazioni sulla testa, sul collo e sul torace che egli ha fatto secondo questa tecnica.

SUMMER SCHOOL CLINICS

Summer School clinics will be conducted under the direction of the Vancouver Medical association from June 25 to June 28, inclusive. Headquarters will be the Hotel Vancouver, Vancouver, B. C. Speakers will be Drs. **William S. Middleton,** dean and professor of medicine, University of Wisconsin Medical school; **Frederick L. Reichert,** professor of surgery, Stanford University School of Medicine; **P. C. Jeans,** professor of pediatrics, University of Iowa; **William Magner,** department of pathology, University of Toronto; and **A. W. Farmer,** department of surgery, University of Toronto. **Dr. H. H. Caple,** 203 Medical Dental Building, Vancouver, is receiving all inquiries regarding the clinics.

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INTERNATIONAL OFFICERS

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REMITTANCES FOR DUES: CHECKS SHOULD BE MADE OUT TO DR. BENJAMIN I. GOLDEN, TREASURER, AND MAILED TO MR. RALPH E. OSBORNE, BUSINESS SECRETARY, 2543 PARKWOOD AVE., TOLEDO, OHIO.

ported three operations performed above the thorax—one in the neck and the other two at the level of the lower jaw. From results obtained he concluded that analgesia in the head or neck had not proved satisfactory, inasmuch as patients complained of pain. He pointed out that cocaine causes mental anguish, partly because the patient hears all the details of the operation. He stated that spinal anesthesia presents difficulties when used higher up because analgesia appears slowly, large doses of cocaine are necessary and the sites for injection here are inadequate He concluded that (1) high or total anesthesia can be obtained by the injection of cocaine, even in small doses; (2) in order to assure anesthesia of the upper extremities, 4 cg of cocaine must be used; (3) anesthesia of the face or neck is not sufficient to warrant operating on these regions, partly because of the emotional distress produced in the patient by the operative manipulations; only when both general and local anesthesia are contraindicated should spinal anesthesia be employed for operations on the head, (4) isotonic solutions produce anesthesia less effectively than aqueous solutions because they seem to be less diffusible than the latter

In 1900, Tait and Caglieri reported the use of cocaine (injected at the level of the sixth cervical space) in six cases with good results

In 1901, Morton resected the maxilla under spinal anesthesia He also reported (1901) 253 operations performed under spinal anesthesia, 8 of which were above the diaphragm Later he reported a second series of 61 operations, 55 of which were performed on the head or upper extremities.

In 1908, Jonnesco advised puncturing the spine at different heights, according to the region to be operated upon, stovaine with strychnine and caffeine was recommended as the anesthetic The fatal accidents which resulted from cervical or upper dorsal puncture made it necessary for him to abandon this method.

Le Fillatre, in 1918, described a method conceived in 1902 and consisting in the puncture of the sacrolumbar space, the withdrawal of a variable amount of cerebrospinal fluid, according to the height of anesthesia desired (25 cc. to produce anesthesia as high as the nipples, 30 cc. for the head) and the injection of cocaine solution, the amount depending upon the region to be anesthetized (1 to 1.5 cc. for the legs, 2 cc. for the subumbilical region and 3 cc. for general anesthesia, barbotage being practiced three or four times).

Delmas[2], of Montpellier, suggested in 1918 a method for obtaining general anesthesia consisting in puncture at the lumbodorsal space, with the patient seated, and the forceful injection into the subarachnoid space, using a Luer syringe (20 cc), of 20 to 40 mg. of cocaine and 20 cc of cerebrospinal fluid —a rather crude and dangerous procedure.

Koster[3] published an article on spinal anesthesia with special reference to its use in surgery of the cranium, neck and thorax. In 1924 he began using spinal anesthesia in operations below the diaphragm. After previous injection of morphine and atropine, he injected 100 mg. of novocaine dissolved in 4 cc. of cerebrospinal fluid, making the injection at the level of the second lumbar space, the patient in lateral decubitus (usually left); he obtained with this method anesthesia extending as high as the nipples; in an attempt to produce anesthesia of longer duration, he increased the dose to 20 cg. and the quantity of cerebrospinal fluid to 8 cc., placing the patient *afterwards* in the Trendelenburg positon: accidentally he discovered that the patient became totally anesthetized According to Koster, vomiting often occurs, the respirations, almost diaphragmatic, being regular, slow and diminished in fullness Koster stated that the Trendelenburg position prevents in which the pterygium has had an excessive development, as a general rule, the corneal tissue is involved.

Another important anatomic fact is that the dissection should be from the periphery towards the center. This detail has given rise to special methods which will be treated in the course of the article.

ETIOLOGY

Very little is known of the etiology of pterygium. According to Horner, Fuchs, Zehender and other opthalmologists, it originates in the pinguecula. Degeneration of the conjunctiva produces a fatty infiltration of the intimate structure of this membrane and the membrane under it (the episcleral tissue), this degeneration resulting in a certain degree of mobility of the conjunctiva. In the pinguecula there is, in addition, new formation of elastic tissue, which shrinks the conjunctiva; when the tissue invades the sclerocorneal limbus it is easy to explain, up to a certain point, the retraction suffered by the conjunctiva and the formation of the fold of membrane which constitutes the pterygium.

However, recent biomicroscopic studies made by Coby and Galemaerts have demonstrated that the pinguecula is a senile degeneration of the conjunctiva and that it exists constantly in persons of advanced age. Therefore, the frequency of pinguecula does not correspond to that of the pterygium. On the other hand, there are other factors which contribute to its formation, such as powder, smoke and irritating gases, intense sunlight or other light, heat, etc. Its occurrence is exceptional in persons not exposed to one or more of these irritants. Pterygium frequently is found among the wealthy and, what is more curious, these cases have the characteristics of a hereditary disease.

Among the causes given have been slight trauma of the margin of the cornea which would incite the incursion of vessels in the conjunctival tissue of the cornea. Furthermore, this theory has been somewhat confirmed by the presence in the cornea of multiple small marginal ulcerations seen only by means of the slit lamp.

The vascular theory of pterygium formation is of great importance and has inspired a number of operative technics and therapeutic measures which usually give good results. One of the most ardent defenders of this theory is Prof. Obarrio of Panama, who has made a careful study of the vessels of the pterygium. According to this author, if the vessels end by forming loops after extirpation, the pterygium does not recur, but if they end in brush form which is directed towards the cornea, their recurrence is almost certain. To avoid it he advises cauterization, repeated until the desired modification in the vessels is obtained.

Terson attributes great importance to the pinching of the conjunctiva which determines the formation of the pinguecula.

In truth, the etiology is obscure and in certain cases one might invoke one or more of the causes mentioned. It is also necessary to cite other more obscure causes, such as alcoholism, hot climates, neurotrophic disturbances, etc.

TREATMENT

The treatment of the pterygium is surgical but even nowadays the results are uncertain. Analyzing, on the one hand, some of the operative methods which have been used, and on the other hand, the mistakes, faulty technic, and even the lightness with which this disease is considered, it is seen that a great number of the causes of failure reside not in the tenacity and recurrence of the condition, but in the difficulty of performing the operation in an irreproachable manner and in the belief that the thing is a simple one, whereas in reality it is not.

From my own observations, general anesthesia is produced only rarely when the patient is placed in the Trendelenburg position *after* the injection From studies made on patients I have reached the conclusion (expressed in the theses of Rodarte, 1918, and Garza Cantú, 1935), that to insure general anesthesia the patient must be placed *first* in an inclined position (at an angle of 45°) and the anesthetic then injected

AUTHOR'S TECHNIC

I shall point out only those details of my technic which distinguish it from other methods

PUNCTURE The patient is placed in lateral decubitus although he may be seated in a chair if puncture is difficult, the initial position is relatively unimportant because the inclined position may be assumed after puncture and before injection of the solution Puncture is made between the fourth and fifth or the third and fourth lumbar vertebrae (fig 1)

SOLUTION A solution of 0 2 cg of novocaine in 10 cc of cerebrospinal fluid is prepared Two ampules of 0 15 cg each can be dissolved in 3 cc of cerebrospinal fluid, to 2 cc of this solution (which contains 0 2 cg of novocaine) is added 8 cc of cerebrospinal fluid

POSITION The patient is then placed at an inclination of 45° *before the injection* is made (fig 2) This point distinguishes this method from the methods of others The injection is made and the operative field is then prepared When everything is in readiness, the Trendelenburg position is changed for the one desired at operation At the conclusion of the operation, the patient is placed in bed and kept in a horizontal position for several hours Although this is not indispensable, it is advisable to prevent or relieve headache

I have performed the following operations, a total of 505, from December, 1934, until June, 1939, without a single accident

	No of Cases
	211
Operation on Mandible	
Uranostaphyloplasty and Plastic Surgery of Face	1
Extirpation of Tumor of Parotid Gland	1[illegible]
Pharyngectomy	
Extirpation of Tumor of Neck	
Craniectomy	
Extirpation of Tumor of Orbit	
Operation on Upper Extremity	
Enucleation of Eye	
Esophagoplasty	
Operations on Mastoid	
Cervical Sympathectomy	
Ligation of Carotid Artery	
Operation in the Buccal Cavity	4
Operations for Scars on Neck	1
Removal of Tumor of Thymus	1
Total	505

In a later report I shall complete this study of my technic and will include the physiology indications contraindications, and other factors

SUMMARY

A chronological study of the evolution of generalized spinal anesthesia is made The author describes his personal technic and points out the ways in which his method differs from the methods of others He lists 505 operations on the head, neck and thorax which he has performed according to this technic, without a single accident

REFERENCES

1 Chaput Presse med (Nov 9) 265 1901
2 Delmas *Ibid*, (Mar 14) 1918
3 Koster Am J Surg, 1928

RÉSUMÉ

Analgésie rachidienne généralisée

L'auteur fait une étude de l'évolution de l'anesthésie rachidienne généralisée Il décrit sa technique personnelle et nous indique en quoi sa technique personnelle [illegible] des méthodes préconisées par [illegible] Il [illegible] 505 [illegible]

third stage in which surgeons concentrated their attention on scraping and cauterizing the head of the pterygium with the thought that a great improvement had been made in the treatment of the disease. However, failures still occurred and the ingenuity of the operators was called into play to invent new methods of attaining success. Modifications were then adopted in accordance with experience and the different theories of etiology. Thus were brought into practice the procedures of inversion, pricking, deflection, transplantation, forcible separation, etc., some of which are still used at the present time with good results.

It would be tedious to review all of these technics, but they may be mentioned by groups, placing together those which have common characteristics and are essentially identical. At the same time their advantages, defects and disadvantages will be pointed out.

METHODS OF EXCISION

The methods of excision consist in extirpating the pterygium. If the body is triangular or quadrangular in form, the head is carefully loosened and resected. After scraping and cauterization of the bloody part of the cornea, the wound is sutured by simple approximation of the edges. Usually a horizontal scar remains; some uncovered areas of the sclera are left uncovered, these closing by granulation. The result is in an enlarged, irregular scar and if the excision is ample, the conjunctiva hangs over the cornea, causing recurrence or the formation of a false pterygium (figs. 3-6).

METHODS BY EXCISION AND CONJUNCTIVAL AUTOPLASTY BY TRANSFERENCE

These methods are, in principle, the same as those described above, but in order to close the wound and avoid in part irregular scars, excision of the pterygium is followed by incision and detachment of the conjunctiva, thus permitting an easier transference and the approximation of the edges by means of sutures. Some of these have the disadvantage that the remaining tissues project over the cornea, produce folds in the conjunctiva and cause horizontal scars (figs. 7-10).

One of the typical technics of this category is that described by Dr. Daniel M. Vélez, consisting in excising the pterygium in its entirety and later making an ample débridement of the conjunctiva towards the upper and lower parts of the cornea. By this ingenious detail the conjunctiva is easily freed and the portion showing loss of tissue as a result of excision of the pterygium may be covered.

METHODS BY EXCISION AND DEFLECTION

These methods, which are more nearly perfect than any previously described, entail more autoplasty and the formation of a deflected scar with respect to the palpebral fissure. Terson, Fernando López, Uribe Trincoso, Lipscomb and others use these methods.

METHODS BY SIMPLE DEFLECTION

With simple deflection the pterygium is uprooted and transferred to another place. Desmarres was the first to put this idea into practice. He first dissected the pterygium and then placed it in a new bed on the conjunctiva; afterwards he inserted it under the conjunctiva in order to cause a definite deflection of the vessels and to provoke the atrophy of the pterygium (figs. 11 and 12).

Later MacReynolds modified this procedure, inserting only the head, without total dissection of the pterygium, which is accomplished through an incision made on the lower edge of the pterygium (figs. 13 and 14). These procedures are inspired by the preponderant rôle attributed to the blood vessels in the formation and recurrence of the pterygium.

THE TREATMENT OF PTERYGIUM

ANTONIO TORRES ESTRADA, M.D., F.I.C.S.

Member of the Mexican Academy of Surgery
Member of the National Academy of Medicine

MEXICO CITY, MEXICO

ONE of the ocular diseases known to medicine since the most remote times is pterygium. It would be almost impossible to review the entire literature on this subject, considering that in the course of the years innumerable methods of operation have been constantly accumulating for the treatment of this disease.

A pterygium consists of a triangular shaped conjunctival fold, the vertex of which invades the cornea. The base is along the bulbar conjunctiva from which it extends and with which it is confused. Its direction is always horizontal, corresponding to the portion of conjunctiva between the palpebral fissure. Usually it is found in the inner or nasal area, rarely in the external or temporal portion. Sometimes it occurs simultaneously in both areas and in both eyes. It is similar in appearance and development to a neoplasm of the conjunctiva; nevertheless, it is not a new growth, but a simple conjunctival fold attracted slowly and gradually by its vertex from the edge of the cornea towards its center, until it invades the pupillary field, adhering firmly to the corneal tissue.

It is easy to demonstrate that a pterygium is a simple conjunctival fold by inserting a catheter between it and the bulbar conjunctiva, both from above and below, this catheter coming in contact with the bottom of the sac which forms the fold. Moreover, because of its elasticity, the pterygium, if carefully detached from the cornea, tends to resume its normal position before advancement.

A pterygium can be differentiated into a vertex or head, a base or body, and a neck, which is the portion that unites the other two parts at the sclerocorneal limbus. For a better comprehension of the operative technic to be described in this paper, it would be well to differentiate two other elements: one the foot, or pedicle, that is to say, the portion of conjunctiva adhering to the ocular globe extending between the two lower portions of the sac which forms the conjunctival fold; and the fatty cushion formed by the episcleral tissue which is hypertrophied and supercharged with fatty cells and elastic fibers (fig. 1). Normally this tissue is constituted of loose cellular tissue, but once degeneration begins, fatty cells invade the entire body of the pterygium. This detail must be borne in mind during extirpation. In operating the pterygium usually is dissected and extirpated completely, with removal of a great part of the conjunctiva, and but a minimum of the fatty cushion, a large area of the sclera remaining exposed. It is easy to remove the head of the pterygium and leave the foot intact, the result being a very small loss of conjunctival tissue (fig. 2).

By studying the case with a slit lamp one can determine whether Bowman's membrane or the tissue of the cornea itself has been invaded. The most favorable cases are those in which the process has not invaded Bowman's membrane, a condition found in recent cases in the form of benign evolution; but in old cases, such as malignant ones, or those conjunctival blood vessels. The variety of these procedures is almost infinite, as an incision made farther up or farther down, a flap placed upward or downward, and differences in the shape, size and number of the incisions constitutes sufficient motive for describing a new procedure for each variation in technic. Typical methods are those of Dr. Fernando López, who makes a small triangular flap, thereby obtaining an oblique and lineal scar (figs. 15-18) and of Dr. Terson, who makes a rectangular flap which descends and covers the conjunctival breach (figs. 19 and 20). Some of the procedures of this category have the great defect of making too ample dissections of the conjunctiva, the resulting flaps hanging over the cornea and covering its bleeding portion, thus leading to recurrence. Another objection to these procedures is the difficulty of their complicated technics.

METHODS OF TRANSPLANTATION

These methods consist in replacing the pterygium by a piece of conjunctiva taken from the unaffected eye, if it is healthy, or from the healthy part of the diseased eye. Instead of a conjunctival graft a portion of labial mucous membrane or even a bit of skin may be used. These procedures can be recommended only in the almost irreparable cases, such as those in which the pterygium is complicated by symblepharon, atrophy of the conjunctiva or marked retraction of the tissues and with immobility of the ocular globe, a frequent sequela in cases of pterygium which have been operated upon and have recurred several times.

METHODS BY FORCIBLE SEPARATION

These do not exactly constitute a group of procedures but rather of variations employed by operators. Attention is called to the manner in which some operators separate the head from the remainder of the pterygium; that is to say, they make a real extirpation, proceding from the periphery towards the center. For this some use a squint hook; and Prince, Webster, Fox and others accomplish this by means of sutures previously placed in the body of the pterygium. In this group are those operators who dissect it from the periphery towards the center. The extirpation is easy and almost never is a residue of the pterygium left in the cornea. Operating from the periphery towards the center has an anatomical foundation.

DEFECTS AND MISTAKES IN TECHNIC

From the foregoing enumeration of some of the principal operative methods, it will be seen that defects and mistakes in technic abound and among them are: too wide dissection of the conjunctiva, especially if this is made in the sclerocorneal limbus itself which makes autoplasty at a later date difficult and predisposes the conjunctiva to project over the cornea; the development of horizontal scars and of folds produced by granulation tissue abundant proliferation of the vascular tissue; the persistence of the hypertrophied episcleral tissue which raises the conjunctiva and makes it more bulky, so that it is easily moved and folded by the eyelids; failure to dissect carefully the head of the pterygium, which may have left residue of the cornea; the exaggerated scraping of the bleeding surface of the cornea or the cauterization which is made to destroy the rest of the pterygium, both of which only provoke an extensive and profound loss of substance and the destruction of Bowman's membrane, giving rise to a scar which will fill the breach with granulation tissue and which will cause recurrence. Finally, the tearing of the flaps, the imperfection of the operation and some other defects of less importance must be taken into consideration. All represent a very important contingent in the recurrence of the disease, which usually is attributed to its tenacity. However, an operation performed care-

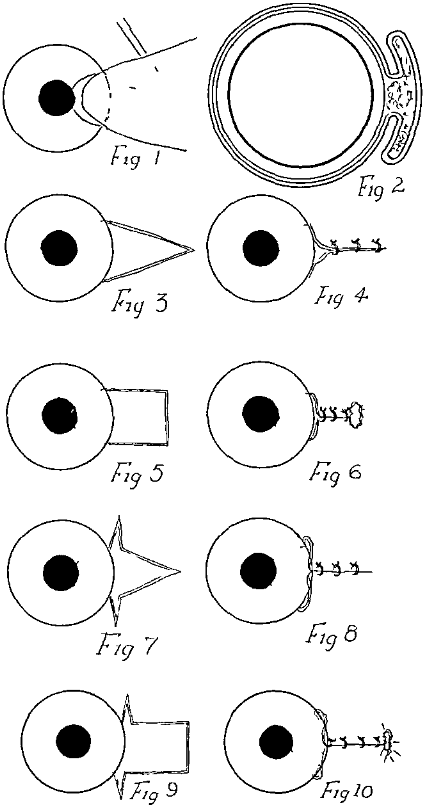


Fig 1 Foot of pterygium indicated by the dotted lines

Fig 2 Foot of pterygium and the episcleral tissue filled with fatty cells

Figs 3 and 5 Methods by simple excision

Figs 4 and 6 Same procedure as in Figs 3 and 5 with sutures

Fig 7 10 Methods by excision and conjunctival autoplasty by transference

In the earlier days of medicine the treatments for pterygium were excision, cauterization and ligation, but the end result was always recurrence Later, simple excision was complemented by suture of the wound In 1854 Coccius pointed out the advant [illegible] f [illegible] n preventing recurrence sumes a form similar to that of the healthy conjunctiva.

After performing this part of the operation, an incision is made on the portion of the conjunctiva farthest from the limbus (*A-B*, fig. 23). Another incision (*C-D,* fig. 23) of the same size and in a direction opposite to that of the former, 2 mm. from the limbus, is made. The result is two small flaps opposed by their vertex.

By means of a suture the end of flap *A* is taken to the bottom of the incision in *C-D,* and the point of flap *C* is taken to the bottom *B* of the incision *A-B* (figs. 23 and 24).

From this removal of the flaps an N-shaped wound results; a scar completely perpendicular to the palpebral slit forms, provoking a diversion of the vessels also in this direction (fig. 24).

To finish the operation, as many stitches will be taken as are necessary to obtain the correct support of the flaps and to avoid their projection. A stitch should systematically be applied between the portion adhering to the limbus and the diverted flaps (fig. 24).

In the technic just described two principal details stand out: The first is the necessity of respecting the foot of the pterygium, too wide dissection of the conjunctiva being thus avoided; the second is the necessity for removing the episcleral tissue so that the conjunctiva is permitted to return to its normal relations with the sclera, to which it adheres, and this, in turn, prevents it from being pinched and traumatized by winking.

The results obtained with this procedure are satisfactory, although there have been some recurrences. Precautions are less necessary with this procedure than with many others and the slight mobility of the conjunctiva over the cornea does not make the use of a binocular bandage indispensable as in the other classical procedures.

In addition to these operative methods, the author has used several physical agents for the treatment of pterygium, among them diathermocoagulation and roentgenology.

The action of diathermocoagulation, despite its penetrating, modifying and sterlizing effect, acts as a simple burn, and no matter how completely it is done, it leaves elements in the cornea sufficient to provoke its recurrence. If some authors have been satisfied with the procedure, it is probable that their conclusions in most cases have been premature and that they have published them only because of their enthusiasm over the immediate results.

Roentgen rays are not capable of destroying a pterygium as they destroy a neoplasm, but they can convert a progressive pterygium into a stationary one, making it thinner, more pallid and poorly vascularized and therefore, more easily tolerated by the patient. A series of postoperative irradiations was given by the author in those cases in which a tendency towards reproduction was noticed.

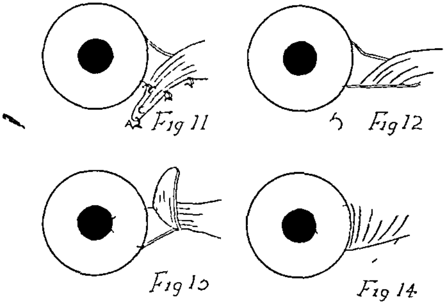
SUMMARY

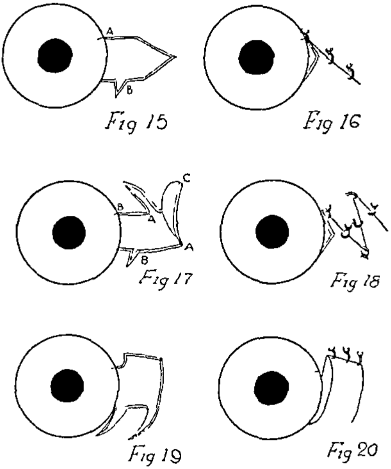
The etiology of pterygium is obscure. It is probably caused by one or more of the following factors: degeneration of the conjunctiva with simultaneous formation of elastic tissue in the pinguecula; powder, smoke and irritating gases; intense light or heat; and trauma. The author's technic of operation, herein described, is a combination of what he considers the important elements of operations commonly practiced for this condition. Results obtained with his procedure have been satisfactory, although there have been some recurrences. However, fewer precautions are necessary with this method than with many others.

RÉSUMÉ

Le traitement du ptérygion

L'étiologie de cette affection est obscure. Parmi les facteurs étiologiques on peut citer: dégénération de la con-





Figs 11-14 Methods by *simple defection* (Desmarres and MacReynolds)

Figs 15-20 Methods by autoplasty of flap (Fernando Lopez Terson)

MacReynolds' method gives good results with respect to nonrecurrence but the reddish and bulky appearance of the conjunctiva persists for a long time. His procedure also has the advantage of not dissecting the pterygium a circumstance which is principally responsible for the good results obtained

METHODS BY AUTOPLASTY OF FLAP

These procedures consist of excising the pterygium and covering the exposed area with conjunctival flaps, to meet two cardinal purposes (1) to replace the diseased conjunctiva with normal conjunctiva, and (2) to properly place the operative scar and the direction of the

ACIDOSIS IN SURGERY

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THE maintenance of the normal hydrogen ion concentration of the blood is of greatest importance. Judged by its volumetric value, blood plasma is strongly alkaline, although the *p*H is 7.38; but the ionic reaction by electrometric methods reveals it to be only slightly alkaline and almost neutral.

The discrepancy between these two tests is due to two causes: (1) the presence of buffer salts, consisting of H and OH ions, which may be supplied according to the needs of the organism to neutralize excessive acids or bases in the blood; (2) the resistance of the blood to changes in reaction, in addition to hydroxyl ions, which makes it capable of neutralizing acids, this being the mechanism whereby the organism defends itself from the invasion of acid products of metalbolism.

The ionic and osmotic equilibrium of the plasma is maintained by carbonic acid, a weak and volatile acid which can easily be eliminated through the lungs. It is formed from the products of organic combustion, the resulting CO_2 being dissolved in the form of H_2CO_3.

The quantity of CO_2 in the blood is an indicator of the fixed acids contained in the blood, just as the tension in the pulmonary circulation indicates the CO_2 tension of the alveolar air. A decrease in the alveolar carbon dioxide combining power indicates an alteration in the hydrogen ion equilibrium or the presence of acids in the blood, and inversely, an increase of the alveolar CO_2 indicates a reduction of the fixed acids of the blood.

The acidity of the blood depends on its capacity to combine with CO_2. When this capacity is reduced by the presence of acid products of metabolism to a point at which the acid products exceed the alkali reserve, acidosis results. On the other hand, when the balance between the alveolar CO_2 and the combined CO_2 of the blood is constant, there results only a reduction of the alkali reserve of the blood. The acidosis would be uncompensated if a real increase in the H ions occurred, a result which would follow the formation of acids in abundance; this is observed only in the moments preceding death.

The principal buffers are bicarbonate of soda, mono and dibasic phosphates, proteins and hemoglobin.

When the bicarbonate concentration of the blood is lowered, it is supposed that the alkali concentration is also lowered. This alkali reserve is in direct ratio to the bicarbonate contents and is always reduced in the presence of abnormal metabolic processes, as in diabetes, when organic acids are in excessive quantity. For the maintenance of the normal *p*H of the blood it is necessary that the reduction of the alkali reserve be balanced with the equivalent lessening of the CO_2 tension.

An aid in this regulatory process is the respiratory system. The respiratory center is a regulator of the circulatory-pulmonary equilibrium and for that reason of the acid-base equilibrium of the blood, according to the theories of Winterstein and Haldane.

The kidney, which eliminates urine whether it is acid or alkaline and in this way subtracts from the organism the acid or alkaline valencies, also assists in maintaining a constant acid-base equilibrium. When the kidney does not funcfully with some of the procedures herein mentioned, the operator being guided strictly by the exact details of the operative technic, is likely to give excellent results. Otherwise it is hard to explain the fact that they are recommended and used by their respective authors.

STANDARD OF OPERATIVE TREATMENT

After the defects have been pointed out, it is fitting to indicate the standard by which operative methods should be governed. For all practical purposes they may be reduced to three:

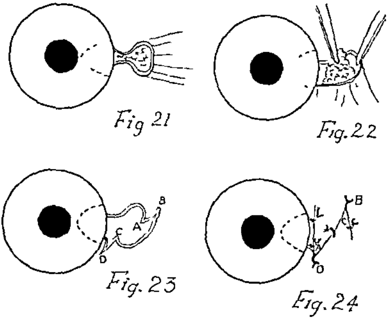
1 Careful dissection of the head of the pterygium from the periphery to the center of the cornea, respecting Bowman's membrane and the corneal tissue.
2. Respect for the pedicle of the pterygium and avoidance as nearly as possible of the dissection of the pterygium itself, with ample excision and dissection of the conjunctiva.
3. The making of an exact autoplasty without stretching, projection of the conjunctiva over the cornea being avoided and an attempt being made at the same time to obtain a scar remote from the palpebral slit, in order that the blood vessels may be properly directed.

The author's method which is described below has given good results. It is a selection of elements and details taken from various procedures.

AUTHOR'S TECHNIC

Anesthesia is induced by instillation of a solution of cocaine with the addition of 5 per cent adrenalin and the injection of a small amount of novocaine into the body of the pterygium

The head of the pterygium is grasped with a forceps with light traction. A cataract knife is inserted under the pterygium towards the limbus, and with the back of the knife the dissection is made slowly from the periphery towards the center, the operator taking care not to leave any residue over the cornea. If the dissection has been done well, a smooth surface slightly brilliant, mirror-like and transparent, will remain, corresponding to the external layer of the cornea. To make this dissection accurately it is well to use a binocular loupe.



Figs 21-24 Author's technic.

Once the pterygium is dissected, it is grasped by the vertex with a fine forceps and the portion corresponding to the head is cut with a small scissors, care being taken to make the cut in a direction perpendicular to the fold. The result is in an oval-shaped loss of substance, whose greatest diameter is vertical (fig. 21).

The remainder of the pterygium is grasped at the edge of the wound with a forceps and is brought towards the palpebral commissure, in which position it is maintained by the assistant. Meanwhile the operator removes the body of the pterygium from the hypertrophied episcleral tissue, exercising care not to tear the conjunctiva, either at the foot or at the fold portion corresponding to the body. It is surprising at times to see the quantity of fatty t whi must be removed to leave cl and to note how the con vl forms the body of the 1,

junctive avec formation simultanée de tissu elastique dans la pinguécule, poudre, fumee gaz irritants lumiere intense et grande chaleur traumatisme L'auteur décrit en détail la technique de son operation Ses resultats furet satisfaisants, quoiqu'il eût quelques récidives Neanmois, moins de precautions sont nécessaires avec sa methode qu'avec les autres méthodes

ZUSAMMENFASSUNG

Die Behandlung des Pterygium

Die Ätiologie des Pterygium ist noch dunkel Es wird wahrscheinlich durch einen oder mehrere der folgenden Faktoren hervorgerufen Degeneration der Conjunctiva mit gleichzeitiger Bildung elastischen Gewebes in der Pinguecula, Staub, Rauch und reizende Gase, starkes Licht Hitze und Trauma Die Operationstechnik des Autors ist eine Kombination aus den wichtigsten Teilen der verschiedenen Methoden die bisher gebraucht wurden Die Resultate mit dieser Methode waren zufriedenstellend obgleich einige Rezidive vorkamen Mit dieser Methode ist weniger Vorsicht notig als mit vielen anderen

SUMARIO

El tratamiento del terigeon

La etiologia del terigeon es obsecura Este es probablemente causado por uno o mas de los factores siguientes degeneracion de la conjunctiva con la formacion simultanea de tejido elastico en la pinguecula polvo, humo y gases irritantes, luz intensa y calor, y traumatismo La técnica de operacion del autor, descrita aqui, es una combinacion de lo que el considera los elementos importantes de operaciones comunmente practicadas por esta operación Los resultados obtenidos con este precedimiento han sido satisfactorios, aunque hallan habido algunas recurrencias De cualquier modo las precauciones son menos con este metodo que con cualquiera de los otros

RIASSUNTO

La cura del pterigio

La etiologia del pterigio è oscura Probabilmente è causata da uno o piu dei seguenti fattori degenerazione della congiuntiva colla formazione, simultaneamente, dei tessuti elastici nella pinguecula, polvere, fume e gassi irritanti, luce o calore intenso e trauma Il tecnico dell autore, qui descritto, è, egli considera, una combinazione di tutti gli elementi importanti delle operazioni ordinariamente praticate per questa condizione I risultati ottenuti con il suo procedimento sono soddisfacenti benchè ci sono stati dei ricorrimenti Tuttavia, meno precauzioni sono necessarie con questo metodo che con molti altri

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APPLICATIONS FOR SCIENTIFIC EXHIBITS FOR ASSEMBLIES SHOULD BE ADDRESSED TO DR CHARLES H ARNOLD, SUITE 903, 94 O ST, LINCOLN, NEBRASKA

diferenciarse de peritonitis agúda, obstrucción intestinal, ilio paralítico y dilatación gástrica. El tratamiento consiste en la administración de fluidos con glucosa, insulina, alcalinos y transfusión de sangre.

RIASSUNTO

L'Acidosi nella chirurgia

I fattori chimichi e fisiologici che producono l'acidosi sono descritti. L'acidosi occorre generalmente quando il biossido di carbonio nel plasma sanguigno è ridotto a meno di 55 volumes per cento. Nel Messico, tuttavia, la condizione normale è, per approssimazione, 10 volumi più bassa che la media al livello del mare. Aiuti per prevenire l'acidosi nella chirurgia sono una disposizione di mente favorevole nell'ammalato; prove complete di laboratorio, comprendendo prove di funzione di rene e di fegato; evitazione di raffreddamento subitaneo e traumatismo durante l'operazione; e la scelta dell'anestetico-corretto. Si deve differenziare l'acidosi chirurgica dalla peritonite acuta, dall'ostruzione intestinale, ileo paralitico e dilatazione gastrica. Il trattamento consiste nella somministrazione di liquidi con glucosio, insulina, alcali e di trasfusioni di sangue.

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Dr. William D. Haggard, of Palm Beach, Florida, died January 28 at the age of 67 years. He was past president of the American Medical Association and of the American College of Surgeons. At one time he was professor of surgery and clinical surgery at Vanderbilt University.

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Revista Mexicana Medicina dedicated its January 10 number to the Mexican chapter of the International College of Surgeons.

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Revista Mexicana Pasteur dedicated its February number to the Mexican chapter of the International College of Surgeons.

Dr. Werner Spalteholz, Dr. Med. and LL.D., professor of anatomy at the University of Leipzig, died January 12.

—o—

Dr. René J. Dubos, of the Rockefeller Institute for Medical Research, was presented with the John Phillips Memorial Award for meritorious work in internal medicine at the annual congress of the American College of Physicians, which opened at Cleveland on April 1.

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Sir Robert Hutchison was reelected president of the Royal College of Physicians, London, on March 18.

THE NEXT INTERNATIONAL ASSEMBLY OF THE INTERNATIONAL COLLEGE OF SURGEONS WILL BE HELD IN MEXICO CITY, MEXICO, AUGUST 10-14, 1941.

tion normally, elimination may be so reduced that the constancy of the reaction of the blood cannot be maintained. This may occur when the kidney is diseased.

The liver supplies ammonia to saturate the accumulating acids and reduces in proportion the production of urea, as is observed by the increased elimination of ammonia in the urine and the lessening of the urea This organ, then, serves as a regulator of the acid-base equilibrium.

The capillary endothelium permits the interchange of alkali between the blood and the tissues Other excretary organs, such as the intestine and sudoriferous glands, assist in regulating the balance between alkalies and acids, the diarrhea and profuse sweating observed in cases of acidosis being instances of the operation of this mechanism.

An analytical study of the different factors which control acidity and alkalinity is necessary for the determination of the *p*H of the blood These consist in: (1) a study of the lowering of the alkaline reserve with the Van Slyke apparatus; (2) a measure of the lowering of the CO_2 tension of the alveolar air which indicates the lowering of the tension of this gas in the blood; (3) tests for acetone, acetic acid and beta-oxybutyric acid in the urine; (4) Sellard's test of the tolerance to sodium bicarbonate.

Normally in the adult the quantity of CO_2 in the blood plasma is equivalent to 55 volumes per hundred When the capacity of the CO_2 is reduced below 55 volumes, acidosis is said to exist Myers measures the degree of acidosis according to the alveolar tension of the CO_2 When it varies from 52 to 40, he designates the condition as latent acidosis; from 40 to 31, as manifest acidosis; and when it falls below 31 (16 being the lowest tension observed which was not followed by death) he calls it grave acidosis

In the valley of Mexico the figures are lower than those found at sea level, without acidosis being present, according to Manzanilla. The difference in clinically normal individuals is approximately 10 volumes per hundred lower than the average at sea level. This is due largely to the total atmospheric pressure which is 585 mm. instead of 760 mm.

The circulation of the blood is a protection against acidosis. When the arterial blood pressure is very low, the volume of blood sent to the tissues at a certain time may be greatly reduced and therefore the quantity of oxygen received by the tissues will also be reduced. Muscular or intellectual fatigue, the breathing of vitiated air, exhaustion, etc., will result in the production of lactic acid instead of carbonic acid as a metabolic product of the tissues, and the lactic acid, which is nonvolatile, cannot be eliminated through the respiratory tract. Its accumulation and the formation of sodium lactate in the plasma instead of sodium bicarbonate give rise to the development of acidosis.

ACIDOSIS IN SURGERY

Acidosis occurs fairly frequently in surgery, making its appearance usually during the postoperative period. In the preparation of the patient for operation and in the preoperative care, the causes of acidosis should be anticipated and prevented, if possible. The emotional factor must be considered in preoperative care because psychic exhaustion may produce acidosis just as physical exhaustion causes it Crile has given a masterly description of the manner in which this force operates The best way to overcome it is to win the complete confidence of the patient.

Kidney and liver function tests should be made to assure the elimination of toxic substances Normal
ments should be established
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SUMARIO

nestesia de las amigdales faringeales
á travez de la nariz

El autor obtiene anestesia de las amigalas faringeales introduciendo en la orcion mas ancha de las cavidades asales una sonda, uno de cuyos extrenos se ha envuelto con algodon y ha sido sumergido en una solución anestésica.

RIASSUNTO

Anestesia delle tonsille faringee

L'autore ottiene l'anestesia delle tonsille faringee coll'introduzione di una sonda che contiene sulla punta un poco di cotone bagnato colla soluzione anestetica nella parte piu large di una delle cavita nasali.

NATIONAL GASTROENTEROLOGICAL ASSOCIATION

THE fifth annual convention of the National Gastroenterological Association will be held June 4, 5 and 6 at the Hotel Roosevelt, New York City. Members of the executive board will take turns in presiding over the scientific sessions.

Dr. Anthony Bassler, of New York, is president; Dr. Horace W. Soper, of St. Louis, first vice-president; Dr. C. J. Tidmarsh, of Montreal, second vice-president; Dr. Felix Cunha, San Francisco, third vice-president; Dr. Roy Upham, New York, secretary-general.

Papers will be presented by Drs. W. Wayne Babcock, of Philadelphia; Chester S. Keefer, of Boston; Max Einhorn, of New York; Stanley P. Reimann, of Philadelphia; A. L. Levin, of New Orleans; J. Louis Ransohoff, of Cincinnati; Robert Zollinger, of Boston; J. S. Diamond, A. Siegel and S. Myerson, of New York; Rich B. Cattell, of Boston; Charles A. Doan, Ph T. Knies and Clark P. Pritchett, of Colum Ohio; Willard D. Mayer, of Detroit; I. R. Jankelson and Charles W. McClure, of Boston; Boris P. Babkin, of Montreal; G. M. Russell, of Billings, Mont.; J. D. Adamson, of Winnipeg, Canada; J. Harvey Black, of Dallas, Texas; Horace W. Soper, of St. Louis; Isidore Cohn, of New Orleans; Anthony Bassler, of New York; Tate Miller, of Dallas, Texas; and Harry P. Smith, of Iowa City, Iowa.

Round table conferences will be held during the luncheon hour each day.

Dr. Henry Kendall, of New York, is chairman of the program committee.

Sir Humphry Rolleston has been admitted to honorary fellowship in the Royal College of Surgeons, London. Since 1924 he has been chairman of the executive committee of the Imperial Cancer Research Fund.

Dr. André Gratia, professor of bacteriology at Liège University, has been awarded the Helme Prize by the Académie de Médecine, Paris, for his work on bacteriophages.

glucose, parenterally, intravenously, or by enteroclysis or hypodermoclysis. Insulin alkalies in the form of sodium bicarbonate and sodium citrate and blood transfusions are of great benefit.

SUMMARY

The chemical and physiological factors which produce acidosis are described. Acidosis occurs usually when the carbon dioxide in the blood plasma is reduced below 55 volumes per hundred. In Mexico, however, the normal condition is approximately 10 volumes lower than the average at sea level. An aid to the prevention of acidosis in surgery is a favorable mental attitude on the part of the patient. Thorough laboratory tests, including kidney and liver function tests, avoidance of chilling and traumatism during the operation and the choice of the proper anesthetic are essentials. Surgical acidosis must be differentiated from acute peritonitis, intestinal obstruction paralytic ileus and gastric dilatation. Treatment consists in the administration of fluids with glucose, insulin alkalies and blood transfusions.

RÉSUMÉ

l'Acidose en chirurgie

Les facteurs chimiques et physiologiques determinant acidose sont etudiés. L'acidose survient generalement quand le dioxide de carbone dans le plasma du sang est reduit en dessous de 55 volumes pour cent. A Mexico, la condition normale est approximativement 10 volumes en dessous de la moyenne au niveau de la mer. Une attitude mentale favorable de la part du malade aide a prévenir l'acidose, d autres facteurs prophylactiques sont les épreuves fonctionnels du foie et des reins, protection du malade contre de refroidissement le minimum de traumatisme dans le cours de l'acte operatoire le choix heureux de l'anesthésique. Ne pas confondre l acidose avec la péritonite aigue, l obstruction intestinale, l'iléus paralytique et la dilatation gastrique. Pour le traitement avoir resours a la glucose, à l insuline, aux alkalins et aux transfusions sanguines.

ZUSAMMENFASSUNG

Acidose in Chirurgie

Die chemisch physiologischen Faktoren, die Acidose hervorrufen sind beschrieben. Acidose tritt gewohnlich auf wenn Kohlendioxyd in Blutplasma unter 55% reduziert ist. In Mexico allerdings ist der Kohlendioxydspiegel 10% tiefer als am Meeresspiegel. Eine Hilfe in der Verhutung der Acidose ist eine gunstige geistige Einstellung des Patienten. sorgfaltige Laboratoriumsuntersuchungen, einschliesslich Nieren- und Leberfunktionsprufung Verhutung von Schuttelfrost und Traumatisation wahrend der Operation und die Wahl des entsprechenden Narkosemittles. Chirurgische Acidose muss von acuter Peritonitis Darmverschluss, paralytischem Ileus und Magenerweiterung unterschieden werden. Die Behandlung besteht in Flussigkeitszufuhr mit Zucker, Insulin, Basen und Transfusionen.

SUMARIO

Acidosis en cirugía

Los fenomeno quimico y fisiologico que produce acidosis son descritos. Acidosis ocurre genaralmente cuando el anhidrido carbonico en el plasma sanguineo es reducido bajo 55 volumenes por ciento. En Mejico la condicion normal es aproximadamente 10 volumenes mas bajo que el promedio al nivel del mar. La ayuda a la prevencion de la acidosis en cirugía es una actitud mental favorable en parte del paciente. examen de laboratorio completo incluyendo pruebas funcionales de los riñones é higado. evitar la exposición al frio y traumatismos durante la operación, y escoger la anestesia apropiada. Acidosis quirurgica debe de

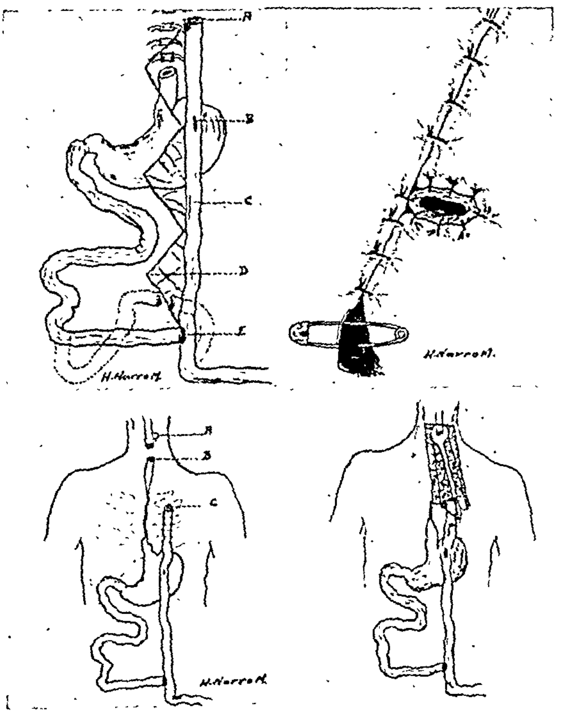

Fig. 1. Upper Left. *A*, Jejunum placed at the level of the fourth intercostal space. *B*, Gastrojejunal anastomosis. *C*, Jejunum. *D*, Vascular arches sectioned. *E*, End-to-side anastomosis.

Fig. 2. Lower Left. *A*, Cervical esophagus sectioned. *B*, Distal end of the stenosed esophagus. *C*, Jejunum sutured to the skin.

Fig. 3. Upper Right. Suturing of proximal portion of esophagus to skin of neck 3 or 4 fingerbreadths from the clavicle.

Fig. 4. Lower Right. Plastic operation of skin to form the tunnel between the cervical esophagus and the prethoracic jejunum.

On August 5, 1938, the second stage of the operation was performed. Under general anesthesia a left lateral incision was made along the sternocleidomastoid muscle; dissection proceeded by layers until the middle cervical fascia and omohyoid muscle were divided in order to expose the esophagus. The esophagus was sectioned (fig. 2) between two forceps as close to the stricture as possible. The distal portion was buried, one end being left in the mediastinum. The upper or proximal portion was sutured to the skin of the neck three or four fingerbreadths from the clavicle (fig. 3).

The forceps which closed the superior portion, now sutured to the skin, was left in place for several days until it came off with the sloughing tissue.

On October 12, 1938, a minor plastic operation was necessary because the cervical orifice of the esophagus was partially obstructed by the formation of scar tissue.

The third stage of the operation was performed June 23, 1939. A cutaneous tunnel about 2 cm. in diameter was established be-

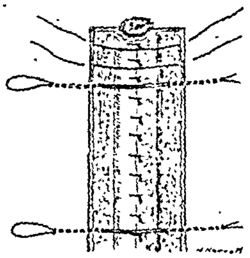

Fig. 5. Edges of flap from which cutaneous tunnel was constructed sutured with catgut and reinforced with silk.

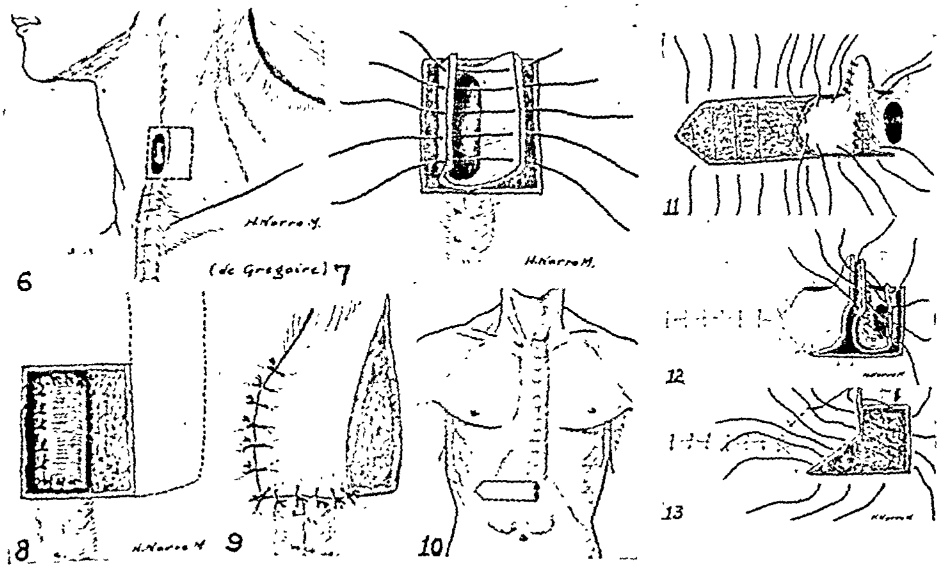

Fig. 6. Esophageal orifice. Figs. 7-9. Steps followed to establish communication between cervical esophagus and cutaneous tunnel. Figs. 10-13. Steps followed in establishing communication between cutaneous tunnel and jejunum.

ANESTHESIA OF THE PHARYNGEAL TONSILS THROUGH THE NASAL CAVITIES

FEDERICO J. MOLAS OLIVERAS, M.D., F.I.C.S.
MEXICO CITY, MEXICO

IN the removal of pharyngeal tonsils, the choice of anesthetic is very important. Some surgeons resort to a general anesthetic despite the occasional bad results from its use in this simple procedure Relaxation and bleeding are the disagreeable accompaniments of general anesthesia in this operation

Some surgeons operate in these conditions without an anesthetic, but it is unpleasant to contemplate such a procedure because of the struggle which ensues between the surgeon and the patient. Loss of confidence is the inevitable result. Cocaine anesthesia offers disadvantages if it is administered through the oral cavity, or by means of insufflations through the nasal chambers, in an attempt to obtain anesthesia by the small amount of anesthetic which reaches the nasopharynx.

The simplicity and efficacy of my own technic at the hands of the specialist and general surgeon for removing pharyngeal tonsils follows:

A probe or cotton applicator, of the kind used by the otolaryngologist, is bent slightly to obtain the curvature of an Ytard's probe, the bent end is wrapped with cotton and dipped in a solution of cocaine (10 per cent), novocaine, pantocaine or other anesthetizing solution The probe is introduced into the widest portion of one of the nasal cavities, determined previously by rhinoscopy Patience must, of course, be exercised with children The patient or the assistant is asked to hold the probe in position, moving it slightly to and fro in order to reach the areas to be anesthetized This procedure is carried out twice, fresh cotton and additional solution being used

This method offers sufficient anesthesia for the performance of the operation and contributes to the confidence of the patient and his parents. Experience has shown that the operation can be more easily and safely performed than by simple digital exploration of the nasopharynx. Hemorrhage is negligible

SUMMARY

The author obtains anesthesia of the pharyngeal tonsils by introducing the anesthetic solution into the widest portion of one of the nasal chambers on a probe, one end of which has been wrapped with cotton.

RÉSUMÉ

Anesthésie des amygdales pharyngiennes par la voie nasale

L'auteur obtient l'anesthesie des amygdales par l'introduction dans la partie la plus large d'une des cavités nasales, d'une sonde dont une des extrémités est entourée de coton imbibé de la solution anesthésique

ZUSAMMENFASSUNG

Anasthesie der Rachenmandeln durch die Nasenhöhle

Der Autor erhalt eine gute Anásthesie der Rachenmandeln durch Einführung des Anasthesiemittels durch den weitesten Teil einer der Nasenhohlen. Die Einführung geschieht mit einer Sonde an derem Ende etwas Watt
ist.

reported, was unsuccessful because of the presence of carcinomatous degeneration.

SUMMARY

A method of esophagoplasty is described whereby a loop of the jejunum was resected; this loop and a tunnel formed from cutaneous tissue were substituted for the stenosed portion of the esophagus. The distal end of the jejunal loop was anastomosed to the stomach, and the proximal loop, to the cutaneous tunnel; the proximal end of the tube was sutured to the esophagus after the stenosed portion had been removed. The operation was performed in seven stages. Perfect function resulted.

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RÉSUMÉ

Esophagoplastic préthoracique

Une anse de jejunum est réséqués et cette anse et un tunnel formé de tissu cutané sont substitués à la portion sténosé de l'ésophage. L'extrémité distale de l'anse jejunale est anastomosée à l'estomac et l'extrémité proximale au tunnel cutané. L'extrémité proximale du tunnel est suturée à l'oesophage après l'ablation du segment sténose. L'opération fut exécutée en sept étapes. Le résultat fonctionnelle est excellent.

ZUSAMMENFASSUNG

Antethorakale Thorakoplastik

Es wird eine Methode der Oesophagoplastik beschrieben, bei welcher eine Jejunumschlinge reseziert wird. Diese Schlinge und ein Hautschlauch ersetzen den verengerten Spiseröhrenabschnitt. Das distale Ende der Schlinge wurde mit dem Magen, das proximale mit dem Hautschlauch vereinigt. Das proximale Ende des Hautschlauches wurde mit der Speiseröhre vereinigt nach Entfernung des verengerten Abschnittes. Die Operation wurde in sieben Zeiten ausgeführt. Das Resultat war ausgezeichnet.

SUMARIO

Esoagoplastia pretoráxica

Un método de esofagoplastia es descrito donde una asa del yeyuno fue resecada y esta asa y un tunel hecho de tejidos cutaneos fueron substituidos por la porcion estenozada del esofago. La porción distal del asa yeyunal fue anastomozada á el estómago y la porción proximal, á el tunel cutaneo; la porción proximal del tunel fue suturada á el esofago despues que la porción estenozada ha sido removida. La operación fue hecha en siete tiempos. La función resulto perfecta.

RIASSUNTO

Esofagoplastia pretoracica

Un metodo di esofagoplastia è descritto per mezzo di cui ci fù una resezione del nodo scorsoio del diguino, e questo nodo scorsoio e un imbuto formato da tessuto cutaneo furono sostituiti per la porzione stenosata dell'esofago. L'estremità periferica del nodo scorsoio digiunale fù anastomizzato allo stomaco e il nodo scorsoio prossimale, all'imbuto cutaneo; l'estremità prossimale dell'imbuto fù suturato all'esofago dopo che la porzione stenosata fù levata. L'operazione fù fatta in sette stadii. Funzione perfetta risultò.

PRETHORACIC ESOPHAGOPLASTY

ABRAHAM AYALA GONZALEZ, M D , F I C S
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President of the Mexican Society of Gastroenterology
MEXICO CITY MEXICO

IN 1929 I published my first report of a case in which esophagoplasty was performed[1] The patient (Mrs A O) was treated on my service (General Hospital, Ward 19) The series of operations was performed by Dr Dario Fernandez and me Some time ago I had the opportunity to examine this patient and found the esophagus to be functioning well

The following report is an observation of a girl (E P) who was admitted to Ward 24 of the General Hospital Mexico City on June 16, 1938, complaining of dysphagia so marked that she could scarcely ingest liquids

Seven months previously (Dec 7 1937) the patient swallowed a small amount of a concentrated solution of lye this was followed immediately by intense retrosternal pain and regurgitation of bloody mucus mixed with small amounts of buccal and esophageal mucosa Soon after the accident aphagia with total inability to ingest food of any kind appeared lasting however but a few days Improvement was gradual and within a short time normal function of the esophagus had returned The recovery was transitory a month after the ingestion of the lye dysphagia again manifested itself and progressed to the point where she could take only liquids and at times even liquids could not be swallowed During this period she had lost 23 Kg in weight

Marked pallor was present Other organs were found to be normal Roentgenograms showed stricture of the esophagus at the upper portion of the sternum The barium most of which was regurgitated appeared like a thread in the roentgenogram The suprastrictural dilatation was moderate

With the use of the esophagoscope an attempt was made to pass some fine bougies in order to prepare for electrolysis a method of treatment which I usually employ when the stenosis is not overcome by the insertion of dilators Several attempts to pass the bougies failed This coupled with the fact that the patient was poorly nourished made it necessary to resort to surgery It was realized that gastrostomy at least must be performed encouraged by the good results obtained with the previously mentioned patient (Mrs A O) a more radical operation was decided upon after the patient had been told of the possible danger to which she might be subjected

The first stage of the operation was performed July 2 1938 under spinal anesthesia Dr Mario Quinones assisting No primary gastrostomy was performed

A midline supraumbilical laparotomy was made as far as the xiphoid process About 40 cm from the duodenojejunal angle a transverse section of the intestine was made The proximal end was closed with a purse string suture a portion of the catgut suture being left long to be used later for traction Two vascular arches were sectioned an attempt being made to preserve as much mesentery as possible with the loop Care was taken that the most distal portion of the mesentery (the portion included in the purse string) conserved its vitality a condition most essential for good operative results It was estimated that the extremity of this distal loop would reach the level of the fourth left intercostal space close to the midline A side to side anastomosis was done between the stomach and the jejunum (figs 1 and 2) the loop was then removed from the abdomen and passed through a subcutaneous tunnel beginning in the epigastrium and extending as far as the fourth intercostal space where it was fixed in a circular manner through an opening of the skin

The continuity of the digestive tube was preserved by performing a side to end anastomosis between the proximal loop and the jejunum below the gastroduodenal anastomosis previously made The abdominal wall was closed carefully in order not to strangulate the intestinal loop transplanted to the thorax

The following day the purse string suture placed in the prethoracic region was opene order to feed the patient Th t gress was uneventful The remained viable

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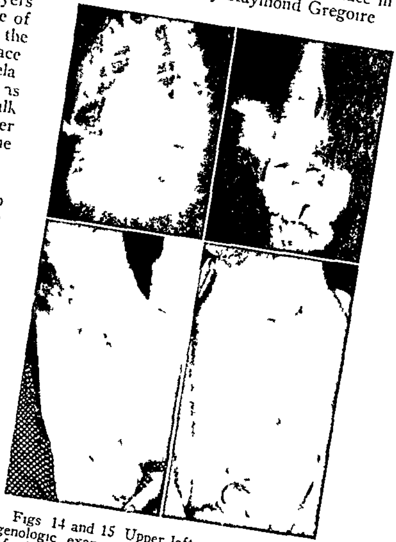
tween the segment of the cervical esophagus attached to the skin and the jejunum, sutured at the level of the left fourth intercostal space (fig 4) Two parallel incisions were made [illegible] cm apart the internal portion of these being dissected for 1 5 cm and the cellulo adipose tissue being conserved in order to leave a pedicle to insure the nutrition of the skin The edges of the flap were sutured in three layers with No 00 catgut The skin on each side of the flap was dissected in order to cover the tunnel created and to leave a smooth surface As the patient was a young girl it was relatively easy to move the skin in such a way as to prevent tension of the sutures A few silk sutures were placed to reinforce the other stitches and prevent the latter from cutting the edges of the wound (fig 5)

Direct communication of the cutaneous tunnel with the cervical esophagus left sutured to the skin or with the jejunum sutured to the precordial region was not established at this time because it was deemed advisable to obtain complete cicatrization of the tunnel before feeding by mouth was permitted The patient was still being fed through a rubber tube placed in the stoma of the jejunum The postoperative recovery was uneventful

On September 14 1939 the cervical esophagus was united with the prethoracic tunnel (figs 6 9) An incision was made parallel to the midline very near to the esophageal orifice and of sufficient length to include the latter and the orifice of the cutaneous tunnel an incision of the same size as the previous one was made to the right of these orifices and a little further from them than the first incision Two transverse incisions were then made at the upper and lower limits of the first two incisions a small quadrangle being formed the left border of the right incision was moderately detached with a greater detachment of the right border of the left incision in order to detach a flap of skin which after its edges were approximated would enclose in its cavity the orifices of the cervical esophagus and the cutaneous tunnel A small fistula was present for a few days but this soon healed and complete cicatrization was obtained The communication between the cervical esophagus and the tunnel was thus assured

On October 18 1939 another plastic operation was performed to establish the communication between the cutaneous tunnel and the jejunum (figs 10 13) This was done in two stages first a rectangular flap was obtained by making two horizontal incisions the orifices being included between them The incisions were 3 or 4 cm in length and were made to end in points being folded in two (figs 10 and 11) The edges of the raw surface were sutured after approximation of its edges Later the flap was divided vertically its left border was sutured to the opposite one and thus another small tunnel was formed the right flap was used to cover the raw surface in the manner described by Raymond Gregoire



Figs 14 and 15 Upper left and right Roentgenologic examination made after completion of plastic procedures showed normal emptying time of stomach

Fig 16 Lower left Scar produced by esophagoplasty performed on Mrs A O in 1929 Esophagus still functions well

Fig 17 Lower right Scar produced by esophagoplasty performed on 17 year old girl (E P)

About the middle of November 1939 the plastic procedures were completed Radiologic examination showed that barium ingested by mouth left the stomach in normal time (figs 14 and 15)

During the time that the communication between the jejunum and the cutaneous tunnel was being established the patient was fed through a tube inserted through the nose

At the time of this writing the esophagoplasty was complete with the exception of the repair of the portion covering the jejunum

A similar operation, performed on another patient previous to the one herein

TWO NEW INSTRUMENTS FOR CRANIOTOMY

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THE discovery and study of old skulls presenting bony losses produced with a deliberate therapeutic purpose give evidence that such surgical attempts are indeed very old. It is safe to assume that opening the skull was performed in ancient times by the Egyptians and Greeks as well as by the Peruvians and the Aztecs on the American Continent.

The vestiges of the procedures of those ancient days show that a strange interest moved surgeons to penetrate into the mysteries of the interior of the human skull.

Some remarkable cases are those in which the extent of bony loss is not proportional to the form and extent of other losses; the condition obviously resulted from the healing of a fracture or an osteomyelitis focus. However, with but few exceptions, up to the end of the last century craniotomy was performed solely for the purpose of applying a treatment to the cranial wall, particularly in fractures and probably also in cases of suppurative and neoplastic processes.

In 1889 Wagner started the scientific revolution that is now beginning to play such an important part in the surgery of the world. This consisted in performing a craniotomy with the sole purpose of reaching the nervous tissue contained within the cranial case. Thus surgery of the skull is being transformed from a therapeutic measure with a single purpose into the first step of more extensive operations on the nervous centers. Craniotomy should be to cerebral surgery what laparotomy is to abdominal surgery today.

The walls of the gross cavities of the human body vary as to their tissues and as to their anatomic structure in proportion to the function of the organs contained therein. The abdomen, the receptable of organs in contact with the outside world, is formed by walls composed almost entirely of soft tissues. On the other hand, the thorax, the main organs of which are exposed to the outside world in a finer and more delicate way than are those contained in the abdominal cavity, has a framework formed by bony elements, alternating with soft tissues; thus the intrathoracic organs are protected in proportion to the delicacy of their anatomic structure and especially their function.

The protection of the encephalon by means of a suitable case has been an organic necessity. This bony structure is molded by the brain itself in accordance with the necessities of formation, development and function. The skull is an almost closed case that has but one orifice below and posteriorly—the foramen magnum. The orbits and the cribriform plate of the ethmoid are weak points, but they are protected by their deep situation, so that the content of the brain may be considered to be hermetically enclosed in a bony case so strong that it is capable of offering great resistance to injury.

In the surgery of the skull, two fundamental problems have lacked adequate solution up to the present time: (1) hemostasis and (2) cutting of the bone.

METHODS OF PRODUCING HEMOSTASIS

Various instruments and technics have been employed at different periods,

ANESTHESIA IN MEXICO DURING THE NINETEENTH CENTURY

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THE progress of anesthesia is so closely allied with the progress of surgery that its development in Mexico is well worth recording In tracing its progress the writer has searched all available literature for articles on the subject including students' theses, medical publications and reviews of scientific societies The first portion of the results of this record appeared in the form of a summary in the *Gaceta Medica de Mexico* the official organ of the National Academy of Medicine (Vol XIX Nos 3 and 4), and in a subsequent number of this publication the final portion will appear Later a complete bibliography of the national literature on the subject to the present date will be published in a single volume By consulting this series of papers or this book one may find any desired reference on anesthesia in Mexico

A very short period of time intervened between the discovery of the first anesthetic substances and their use in this country Dr Martinez del Rio was the first to administer ether and chloroform in Mexico Subsequently, chloroform was preferred and most of the literature compiled referred to it Dr del Rio called attention nevertheless to the fact that despite the crude method of administering chloroform (dropping bottle and a strip of gauze) and despite its many impurities few fatal accidents occurred The anesthetist was thus confident of his work and as a result, many years elapsed before care was recommended in the use of chloroform

The early record of complications which developed following surgery did not differentiate between those caused by the anesthetic per se and those caused by the surgical intervention and thus the responsibility of either the anesthetic or the surgical operation was not defined or established It was not until later that a distinction was made and fatalities ascribed to definite causes

In this paper attention is called to the first use of ether in rectal anesthesia (1884), the use of cocaine as a local anesthetic (1895) several administrations of anesthesia in obstetrics and a few facts regarding the use of nitrous oxide

Rather than make a transcription of the summaries of the original articles, the writer has chosen to indicate the advancement in anesthesia in Mexico by presenting the bibliography in chronologic order

De la anestesia y su aplicación al parto (Tesis) Dr Lorenzo M Ortega 1869 Coleccion de Tesis de la Escuela N de Medicina

Aplicacion del cloroformo durante el trabajo de parto Dr Angel Contreras El Porvenir organo de la Sociedad Filoiatrica y de Beneficencia de los alumnos de la Escuela de Medicina T I No 11 *Noviembre de 1869*

Sobre la acción del cloroformo Dr Juan Cabral En el mismo periodico tomo y numero que el anterior

Estudio sobre el cloroformo Luis Pauer Tesis 1870 Colección de tesis de la Escuela N de Medicina

Cloroformo y sus indicaciones Dr Juan Rodriguez Tesis 1872 Coleccion de tesis de la Escuela N de Medicina

In this manner it is possible to obtain good and lasting hemostasis, started by the infiltration of the anesthetic, continued by the pressure of the fingers and maintained by the pressure of the Kelly forceps on the edge of the skin and the pericranium. The procedure has the disadvantages of being tiresome and of requiring a large number of forceps. The surgeon may tie them in bundles of eight or ten and make four, five or six such bundles; he should arrange the bundles carefully so that they will not interfere with the operation.

More recently, Adson modified the pincers originally devised by Andrews and turned the instrument into a small metallic frame which, when folded in the middle, one edge opposing the other, forms a U which embraces the entire thickness of the soft tissues and is maintained in place by means of teeth very similar to those of Mitchel's pincers. The placing of this device requires the same procedure formerly described, that is, the surgeon cuts a section previously pressed by his assistants, who pull the edge towards them and then lift it slightly so that the surgeon may grasp it with the aid of an indented forceps. Finally, with the aid of the pincers fixed on a large, strong forceps, which he uses with his free hand, the surgeon grasps the entire edge of the cutaneous incision.

The necessity of making the incision before placing the forceps, no matter how good the pressure executed by the assistants may be, implies the presence of a small amount of blood; a larger amount of blood is present when local anesthesia has not previously been given. As the pincers are made of metal, the initial pressure of the forceps upon it is, in many cases, found to be insufficient for sustaining the compression of the edge, so that, with the release of the forceps, the pincers open slightly. It is then necessary to stop the bleeding of some vessel lying between the two branches of the U. The pincers must be placed close to each other in order to surround the edges of the incision on the scalp. Naturally a large number of these is required for a large incision.

Hemorrhage of the diploë, though never equal to the hemorrhage of the scalp, is important, however, especially since it causes considerable inconvenience during the operation.

Hemorrhage of the diploë which occurs during the cutting of the bone with a Gigli saw, before the dependent part has been raised and fractured, cannot be stopped because the vessels remain open within the wound itself and because the space between the cut edges is so narrow that they are inaccessible. Hemostasis is possible only when the dependent bone has been fractured and removed. If there is considerable hemorrhage, speed in operating helps to solve the problem.

In addition to certain procedures now in disuse, such as the application of the Krause metallic hooks, is the fairly recent practice of inserting small pieces of muscular tissue into the diploic spaces by means of a fine stiletto, or even a simple hypodermic needle.

Many other methods have been discarded. Sometimes the mere separation of the vessel from the osseous wall with the edge of the needle was found to be sufficient to obtain complete stoppage of bleeding. Another method was the introduction of small spikes of ivory or of decalcified bone into the blood vessel to obstruct the passage. In order to diminish the oozing of blood which takes place at those points where the vessels are invisible to the naked eye, a few gentle strokes with the chisel are sufficient to sink the diploic layer slightly and to obstruct the passage with the tiny fragments of bone produced by the chisel strokes, thus facilitating the coagulation of blood issuing from the small vessels.

These methods have been superceded by the use of Horsley's aseptic wax which efficiently stops hemorrhage of the diploë. If bleeding occurs from every

lección de tesis de la Escuela N de Medicina

El protóxido de ázoe como anestésico Dr Juan Falero La Escuela de Medicina T XIV No 21 1o de agosto de 1898

Apuntes sobre los accidentes de la cloroformización Dr A Ruíz Erdozain Revista Médica T V No 10 1o de septiembre de 1892

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De las causas de la muerte por el cloroformo Dr José M Bandera Gaceta Médica T XXXVI No 3 1o de febrero de 1899

SUMMARY

The author presents, by means of a bibliography arranged in chronological order, the development of anesthesia in Mexico from its inception to the end of the nineteenth century

RÉSUMÉ

L'anesthésie au Mexique durant dix-neuvième siècle

L'auteur nous présente, au moyen d'une bibliographie arrangée en ordre chronologique, le développement de l'anesthésie au Mexique, jusqu'a la fin du dix-neuvième siècle Dans une publication ultérieure, cette bibliographie sera amenee a nos jours Un livre renfermant tous ces renseignements sera publié

ZUSAMMENFASSUNG

Anästhesie in Mexiko während des neunzehnten Jahrhunderts

Verfasser bringt mittelst eines chronologisch angeführten Literatur-verzeichnisses die Entwicklung der Anästhesis in Mexiko bis zum Ende des neunzehnten Jahrhunderts In einem spätern Aufsätze soll die Bibliographie bis zur Gegenwart weitergeführt werden Dieses Material soll dann in Buchform veröffentlicht werden

SUMARIO

Anestesia en Méjico durante el siglo XIX

El autor presenta, por medio de una agrupación bibliográfica en orden cronológico, el desenvolvimiento de la anestesia en Méjico hasta la terminación del Siglo XIX En un artículo subsecuente la bibliografía sera completada hasta la presente fecha

RIASSUNTO

L'anestesia nel Messico durante il secolo decimo nono

L'autore presenta, mediante una bibliografia arrangiata in ordine cronologico, lo sviluppo dell'anestesia nel Messico sino al fine del diciannovesimo secolo In un articolo susseguente la bibliografia sarà finita ad attualità Questo materiale sara poi pubblicato in forma di libro

* * *

REMITTANCES FOR DUES CHECKS SHOULD BE MADE OUT TO DR. BENJAMIN I GOLDEN, TREASURER, AND MAILED TO MR RALPH E OSBORNE, BUSINESS SECRETARY, 2543 PARKWOOD AVE, TOLEDO, OHIO.

years no one has paid any attention to the problems of hemostasis in craniotomy and to the most effective methods of cutting the bone.

After experimenting for a period of four years with instruments and systems, my associates and I believe that we have solved the first problem, at least, and that we have partly solved the second problem. This is accomplished with instruments adapted to this purpose. In the majority of our cases, these instruments have been very successful. Hemostasis of the diploë is accomplished by the bone cutting instrument.

INSTRUMENTS AND TECHNIC FOR HEMOSTASIS OF SCALP

Hemostasis is obtained through the combination of the infiltration of the solution used for local anesthesia (one-half per cent; adrenalin in most cases) and the compression rendered by the instrument shown in Figs. 1-3.

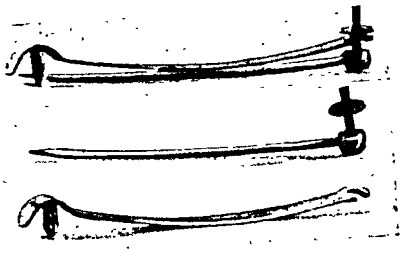
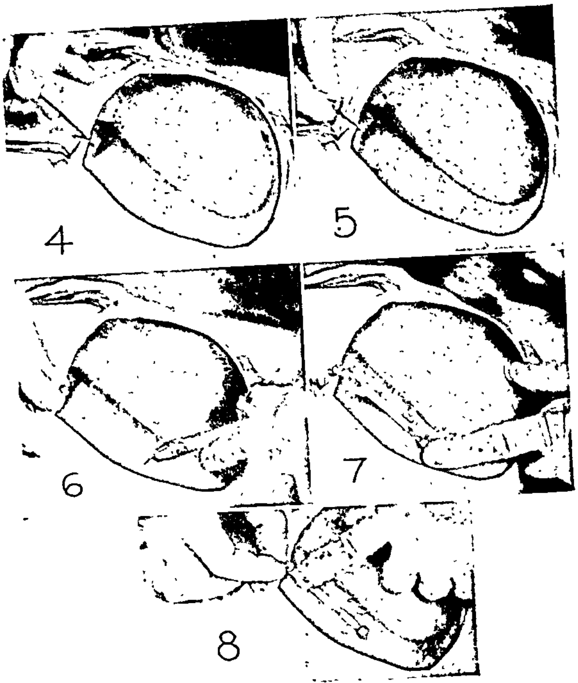


Fig 1. Above, hemostatic compressor. Fig. 2. Center, needle of hemostatic compressor, 7.5 cm. long, triangular in shape, each side of triangle being 1.5 mm. wide; end of needle is sharp and slightly curved; nut on screw at opposite end is not removable.

Fig. 3. Below, steel plate, tempered as a spring; semicircular end protects point of needle, which is inserted into one of the holes.

The instrument is composed of a needle (fig. 2) and a steel plate (fig. 3). The needle is 7.5 cm. long, triangular in shape (for ease of insertion into the skin) with each side measur- ing 1.5 mm. and sharpened at one end like the sharp end of a sword but curved towards the end. The other end is provided with a small piece of metal on which is placed a screw that forms a right angle with the needle. A small nut which cannot drop off is attached to the screw. The length of the needle conforms to the length of a tangent that can be placed over any of the curvatures of the skull along an extension varying from 4 to 6.5 cm. The sharpness of the end of the needle permits it to glide over the bony plane and prevents it from emerging through the skin before it has reached the desired point.

In order to make the needle emerge through the skin, one must rotate it with the screw one quarter of a turn, thus making the screw straight. This operation brings it to a vertical position over the surface of the scalp. If the sharp end of the needle does not penetrate the scalp spontaneously, the skin should be pressed at the point where it is to perforate the skin from inside out; the needle should then be pushed through the soft tissues. With the line for the incision marked along the anesthetized area, the needles are introduced, approximately 1 or 1.5 cm. outside the line, each needle being given a slight inclination in the direction opposite to that which they are to follow under the skin. When it touches the bone, the needle is pushed in the desired direction by maintaining the screw inclined on one side, so that it crosses the necessary extension in a line parallel



Figs. 4 and 5. Line of incision has been marked on scalp; needle is thrust between scalp and skull for a distance of 4 to 6.5 cm.

Fig. 6. At place of emergence through skin, needle point is inserted in hole of metal bar. Fig. 7. Slot at opposite end of bar is slipped over screw on end of needle.

Fig. 8. Pressure is exerted on bar with finger of one hand and screw is tightened with other hand.

some of which are still in use Hemostasis in craniotomy is of especial importance to both the scalp and the bone Hemorrhage can usually be stopped except in hairy skins The difficulty encountered in hairy skins is due to peripheral vascularization Many kinds of compressive forceps designed to stop hemorrhage have been used unsuccessfully

The need for better methods of producing hemostasis resulted in the construction of a special type of forceps to be used on hairy skin Among those who devised such forceps were Krause, Nicholson, Howzel and Chipault

Heidenhein, in an attempt to produce mostasis, placed a suture in successive micircles along two parallel lines, at a distance of one and one half or two centimeters from each other, between which the skin was to be incised This long suture required much time and effort, and yet it did not prove entirely atisfactory Crile advised temporary compression of the carotid vessel, a ethod which is both difficult and dan rous, for the vessels of the opposite e continue to bleed more or less abun ntly

More recently Cushing, the father of nocerebral surgery on the Ameri Continent, devised an elastic ring to laced around the head at the level e glabella and the suboccipital re The ring has a ribbon attached to terior and posterior sides, which along the middle of the skull following the metopic suture and prevents slipping down over the eyes ushing admitted that the device did not obtain good hemostasis because of the incomplete circular compression and the communications of the endocranial circulation with the scalp

The Allis forceps which have a small pin at one end and a flat plate at the other, are unsatisfactory because the two ends form an acute angle with the result that greater compression is produced on the part of the angle near the articulation than on the part corresponding to the sharp end of the forceps Frequently this compression has caused serious crushing of the skin, while the points near the ends of the forceps continued to bleed

Other types of forceps similar to the Allis forceps and operated by a spring have failed to give uniformly good results

Local anesthesia is proving to be a powerful auxiliary to the production of hemostasis of the scalp, even without a vessel constrictor, for it operates by the compression resulting from infiltration into the tight network of the subcutaneous fat tissue of the scalp

In this way it is possible to make an absolutely bloodless incision However, because of the fact that a considerable amount of time elapses before the tissues are sutured, the anesthetic loses its effect, hemostasis ceases and the hemorrhage begins after a while increasing with the passage of time

The problem then is to maintain hemostasis during the time required for the tedious cerebral operation Hence the idea of surrounding the edges of the wound with Kelly's forceps was originated this proved useful and efficient Two assistants one standing by the side of the surgeon and the other opposite him, should compress the scalp, their fingers close to the line of the incision After the local anesthesic is infiltrated the surgeon incises the scalp down to the pericranium and starts placing the Kelly forceps on the pericranium itself along the external edge of the incision, each forceps at a distance of approximately 1 cm along the entire length of the wound The forceps grasps the pericranium and is turned outward from the incision thus lying on the edge and consequently compressing it As for the internal edge, as many forceps as necessary are used tightens it by means of a spring, thus fastening the case at the opposite end (fig. 12).

The specially carved lathe is 1.4 cm. long and has a diameter of 1.7 mm. The lathe is provided with one longitudinal carving and another one in a spiral, extending from left to right. The intersection of the two carvings results in the formation of small teeth directed to the left, so that the rotation of the saw to the left causes friction between each row of teeth and the bony matter with which they come in contact. Inasmuch as these teeth are very fine, the cutting is done by a gnawing action. In this manner the cutting produces a very fine dust of bone that is projected out of the space between one edge of the cut and the other, by the very movement of the spiral contrary to the rotary direction.

It has been possible to use this small motor because the gnawing is done by very small teeth. In De Martel's apparatus, the cutter of which has no teeth, more power is required on the part of the motor as well as the surgeon than with an instrument which gnaws as it cuts. Furthermore, with the instrument herein described, the cut is made quite rapidly due to the great speed of the cutter.

At its lower part, the cutter ends in a pivot which leans against a small cushion set up on an even and oval piece having thin and blunt edges. This piece is the continuation of a plate which protrudes from the case containing the movement of the gears.

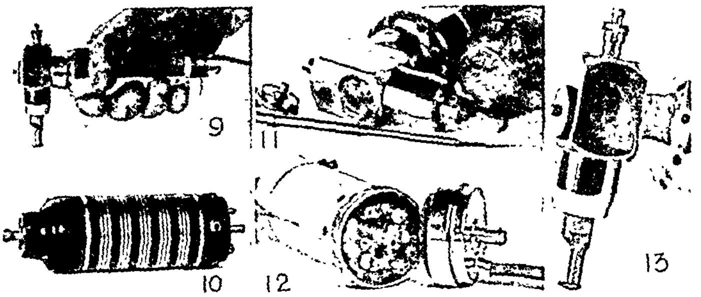


Fig. 9. Instrument for cutting skull. Fig. 10. A small conic gear with 12 teeth was attached to one end of axle and adjusted to a second conic gear of 24 teeth.

Fig. 11. Metallic case, perforated to assure ventilation, in which motor is lodged, and second case, which is adjusted to one end of metallic case and which contains a larger axle perpendicular to the former; inside second case are mounted two ball bearings that support a hollow axle to which the 24-toothed gear is adjusted. Fig. 12. Introduction of motor into case causes the small gear to adjust automatically to the bigger one; a screw cap that carries the connections of the motor tightens it by means of a spring, thus fastening the case at the opposite end.

Fig. 13. Lathe is provided with longitudinal and spiral carvings, the intersection of the two carvings resulting in the formation of small teeth, directed to the left. "Skate" is lowermost portion of the instrument against which pivot of cutter rests; "skate guide" is portion which maintains the skate in adjustment with the remainder of the apparatus.

This little piece containing the small cushion against which the pivot of the cutter leans is the *skate*. The small plate which maintains the skate in adjustment to the remainder of the apparatus is the *skate-guide*. Upon maintaining the body of the apparatus in a horizontal position, the skate-guide remains in a vertical position parallel to the cutter. This latter shows only its carved part intended for cutting (fig. 13).

The hollow axle protrudes from the upper part of the case. The cutting point of the external cut of the bone, the wax must be applied over the entire surface.

METHODS OF CUTTING BONE

The second problem, that of the cutting the bone, is a vital one. Wagner in 1889 used a hammer and chisel for craniotomy, a procedure that was objected to because of the danger of producing cerebral concussion. In fact, operations performed with this method resulted in a high mortality. Toison in 1891 used for this operation a chain saw which he introduced into one trepan hole, allowing the other end to emerge through another hole placed at a convenient distance. Alternating movements given to the saw by two handles fixed at the ends cut through the section of bone between the trepan holes.

Obalinsky in 1897 preferred the Gigli saw, which was manufactured that same year for obstetrical purposes. His procedure, with a slight modification in the instrument, has been used up to the present time by surgeons who operate on skulls.

The usual procedure in North America is to make several trepan holes along the proposed line of the cut and to introduce the Gigli saw into one hole and allow it to emerge through another, with the aid of a conductor plate fashioned after Marion's model. The number of trepan holes varies with the length of the opening. When in use, the saw has the shape of the chord of an arc and thus it is likely to injure the meninges. To prevent this, two conductor plates are used in such a way that when one plate is removed with the forward movement of the saw, the other plate remains in contact with the dura mater, and in this way the alternating movements of the saw cause no damage. The cutting is completed with the de Vilbiss cutting forceps, which are used to remove small fragments of bone.

De Martel devised an electric automatic lathe and a vertical cutter of helicoidal shape which made a cut from four to five millimeters wide. It was provided with a meningeal protector. Both the lathe and the cutter were driven by an electric motor.

Cushing preferred the earlier methods which, although slower than those requiring the use of the new instruments, are less dangerous in his opinion. He cut the bone between two trepan holes, advancing from one primary aperture only. The cut was made from inside out and in such a way as to obtain beveled edges, so that the replaced bone would not sink into the opening made by craniotomy. He used a lathe attached to a wimble to bore the trepan holes and cut the bone between the holes with a Gigli saw. By giving the saw the proper tilt, he produced a beveled edge to the bone. At the extreme ends of the cut he used the Dahlgren instead of the de Vilbiss forceps.

Similar technics have been used by other North American surgeons, such as Adson, Loyal Davis, Dandy, Freeman and Sachs. Verbrugghen uses a device consisting of a large, strong lever attached by one end to a pivot which, in turn, is inserted into a trepan hole in the center of a circle, along the circumference of which the cut was to be made. The lever is equipped with a knife which, rotating around the pivot, cut a circle of bone. This instrument is quite useful, although it requires effort and exertion.

In Europe, excepting for De Martel, who uses his own instruments, surgeons employ the same technic used by the surgeons of North and South America. The imperfections in the technic of craniotomy have been forgotten because of the interest in endocranial work, chiefly as a result of the progress made by neurology and neuropsychiatry and the analysis of clinical phenomena localized in the functional zones. For 15

SOME CONSIDERATIONS ON SPINAL ANESTHESIA

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CORNING was first to conceive the idea of injecting analgesic substances into the spinal canal. Quincke developed the idea of lumbar puncture and its technic, while Bier was first to apply it in humans. Subsequently, Tuffier, Chaput, Doleris and many others adopted the procedure. Because of its harmlessness to the general system, spinal anesthesia has become popular. It is indicated when other methods of anesthesia are contraindicated because of certain dangers. It is often used for a great number of operations upon the lower half of the body.

Various preparations have been used, such as cocaine, stovain, percaine, novocaine, scurocain and combination preparations, such as stovain-strychnine. Used as chemically pure salts, they are dissolved directly in the cerebrospinal fluid. The injection is made into the spinal canal at different levels, the use of the procedure being possible even for operations upon the arms and the head.

To obtain anesthesia at a higher level, injection of the fluid at higher levels is recommended, even up to the space between the atlas and the occipital bone. In order to obtain anesthesia of the head, it is advisable to use a very dilute solution of eucain, producing at the same time mild hyperemia of the cephalic blood vessels by means of a slightly constricted band placed around the neck.

GENERAL ANESTHESIA

High spinal punctures and all technics attempting to attain total analgesia are always dangerous. With other means of obtaining the same results it is unwise to run the great risk which accompanies such procedures.

Generally speaking, spinal anesthesia is a block anesthesia, but if one resorts to its use for general anesthesia, one should employ the Koster technic, injecting 0.2 or 0.25 cc. of novocaine into the spinal canal at the selected site, with the patient in a semi-Trendelenburg position. Sufficient anesthesia can be obtained for operations on the neck, head and upper limbs. Nevertheless, as emphasized, *the method is a dangerous one, despite meticulous preoperative care.*

ANATOMIC CONSIDERATIONS

Block anesthesia has its own definite indications. It is necessary that the field of operation be within the nerve area to be desensitized. In the lumbar portion of the spine the nerves whose paths are to be blocked are those forming the cauda equina. These nerves emerge through the lumbar intervertebral spaces. But as the Quincke puncture is made, not at the junction of the last dorsal and first lumbar vertebrae, but between the fourth and fifth lumbar vertebrae, the nerves affected in the majority of cases are those beginning with the fourth median lumbar nerve. By practicing "barbotage," it is possible to infiltrate the first lumbar root.

The anterior branches of the first four lumbar and the first four sacral nerves constitute the sacral plexus. The anterior branches of the fourth and fifth sacral, with the coccygeal, form the coccygeal plexuses. Therefore, as a rule, in lumbar anesthesia only the sacral and coccygeal plexuses are desensitized, and only by means of "barbotage" is the lumbar plexus reached.

The distribution of the nerves comprising the cauda equina to the cutaneous to the proposed incision and the plane of the bone This is obtained by varying the first position adopted to pierce the skin and giving the needle an inclination until it is parallel to the bony plane

Since the needle has been introduced between the bone and the soft tissues, and since it embraces an area from 4 to 6 cm in length between its entrance and its emergence, the second part of the instrument will compress at the desired pressure the entire thickness of the scalp

The steel plate (fig 3) is tempered as a spring At one end it is semicircular in shape from the inside of this semicircle extends a *small piece also like a plate more or less* perpendicular to the body of the main plate This small piece is provided with two small *holes placed vertically one under the other*

The sharp end of the needle is adjusted to these holes which are 2 mm apart and it is thus lodged in the semicircular curvature This is to avoid accidental pricking The other end has the shape of a wheel 6 mm in diameter and is provided with a slot at right angles to the main plate The screw is adjusted to the slot and the nut rests on that end When this end is pressed with the forefinger of one hand and at the same time the nut is lowered with the other hand, the plate is fixed in the desired *position*

All the needles of the instrument are introduced at the previously indicated distance so as to surround the entire contour of the incision including the base of the dependent soft tissue

Figs 4 8 indicate the different stages of the introduction of these small needles These instruments *permit one to make after their insertion* an incision down to the bone with one stroke of the scalpel The instrument has been *named the hemostatic scalp compressor*

Thus hemostasis, started by the local anesthetic is continued and maintained during the operation by means of this instrument Hemostasis is usually complete Sometimes slight bleeding occurs at the time of the cutting This is merely the oozing of the blood which remains stagnant after the hemostatic compressors are placed in position it stops entirely as soon as the blood has been absorbed with gauze

With a little practice seven or eight compressors — enough to surround a fairly large zone — can be inserted in from 4 to 5 minutes Once in place, they need no further attention

The instrument is sterilized in a fatty substance in the autoclave Thus the sharp ends of the needles remain undamaged *and the temperature of 123° of the* autoclave does not affect the metal, which would certainly happen if the fatty substance were boiled at a temperature of 280°

INSTRUMENTS AND TECHNIC FOR CUTTING BONE AND HEMOSTASIS OF DIPLOE

After many modifications we have finally adopted the craniotome here described Although we believe that still greater efficiency can be obtained, this instrument is a good one and it has given satisfactory results in most cases Originally it was an adaptation of De Martel's instrument, but many modifications have now been made, especially of the cutter It is driven by a small electric motor which produces 25,000 revolutions per minute The manufacturers advertise is as *the motor of one thousand* and one applications We believe that it has added one more application to its list

By adapting a small conical gear of 12 teeth attached to one end of the axle and adjusting it to a second conical gear of 24 teeth the rotating movement was changed from right to left in addition its rate of speed was reduced by half and its power was doubled (*fig 10*)

The motor is lodged in a metallic case of very thin walls perforated to assure ventilation and to avoid overheating of the motor Another case, adjusted to one end of the metallic case contains a larger axle perpendicular to the former *Inside this second case are mounted two* ball bearings that support a hollow axle to which the twenty-four toothed gear is adjusted (fig 11) With the introduction of the motor into the case, the small gear automatically becomes adjusted to the larger one A screw cap that carries the connection [illegible] correct. The uterus does not derive its nerve supply from either the lumbar or the sacral plexus, those directly infiltrated by the anesthetic. The location of the principal lower medullary centers is as follows: The anal center is at the lower end of the cord, while just above it is the bladder center; the genital center is near the middle of the spinal cord; there are numerous vasomotor and hair erecting centers all along the spinal cord. Therefore, the use of spinal anesthesia is advisable in deliveries by forceps, version and cesarean section. The uterine musculature retains its tonicity. This method of anesthesia has, at the same time, the advantage of obtaining relaxation of perineal muscles—a very important factor during delivery.

Anesthetic. The selection of the preparation used for the anesthetic must be considered. When a high operation is to be performed, percaine should be chosen, while the less diffusible novocaine is to be preferred when analgesia at a lower level is desired.

CONTRAINDICATIONS

The possibility of producing general anesthesia or of injuring the cord contraindicates the use of spinal anesthesia in children, who are very sensitive to all forms of medication, and especially to anesthetics. Advanced age is usually a contraindication to spinal anesthesia because of nervous irritability, faulty elimination and certain organic lesions, such as arteriosclerosis.

Spinal anesthesia is contraindicated in patients suffering from severe lesions or systemic infections, when the cardiovascular and nervous systems are severely affected, and especially in pyemia, where infection of the meninges may result.

ADMINISTRATION

Enemas should not be given preceding the operation, especially when operating on the perineum, because of sphincter relaxation during anesthesia. When no special contraindication is present, the patient may have a cup of coffee or a glass of milk for breakfast.

Morphine for sedation should be given an hour before the operation, while caffeine, sparteine-strychnine, or ephedrin should be administered a little before the operation to counteract cardiac depression in spinal anesthesia. Despite this preoperative care there is a slowing of the pulse rate in the first 10 or 15 minutes, which later becomes normal after the anesthesia diminishes. Prolonged action of the spinal anesthetic on the nerves of the heart leads to the thought that other nerves besides those of the cauda equina have been affected. Actually, the anesthetic becomes diluted in the cerebrospinal fluid and affects the whole nervous system in more or less the same degree. Because of this, various symptoms, such as vomiting, pallor, bradycardia, syncope, rhachialgia, paralysis and retention of urine appear. Their explanation is found in the action of the anesthetic upon the respective nervous centers.

The technic of lumbar puncture is too well known to be here repeated. The importance of using only those substances which are least noxious to the nervous system must be stressed. At present preparations which are diffusible even in high concentrations are used because they are more constant in their action, less toxic and easily eliminated, qualities possessed by novocaine and percaine.

In the use of spinal anesthesia, strict indications and contraindications should be evaluated. One must bear in mind that it is a genuine block anesthesia. Novocaine dissolved in cerebrospinal fluid is the preparation of choice.

SUMMARY

Contraindications and indications for the use of spinal anesthesia are presented, based on the site of the operation and the condition of the patient. It instrument can be replaced or removed through the axle without dismounting the entire apparatus, it is necessary merely to remove the nut, withdraw the handle of the cutter, introduce the new *one into the hollow axle and fix it again* by means of the nut (figs 12 and 13)

The apparatus itself can be thoroughly sterilized This is accomplished by removing the motor The cap must be sterilized in boiling water to assure conservation of the fibrous part that carries the motor connections, together with the rubber cover and the electric wire *contact It is preferable however, to* sterilize both the cover and the cutting instrument in liquid vaseline in the autoclave

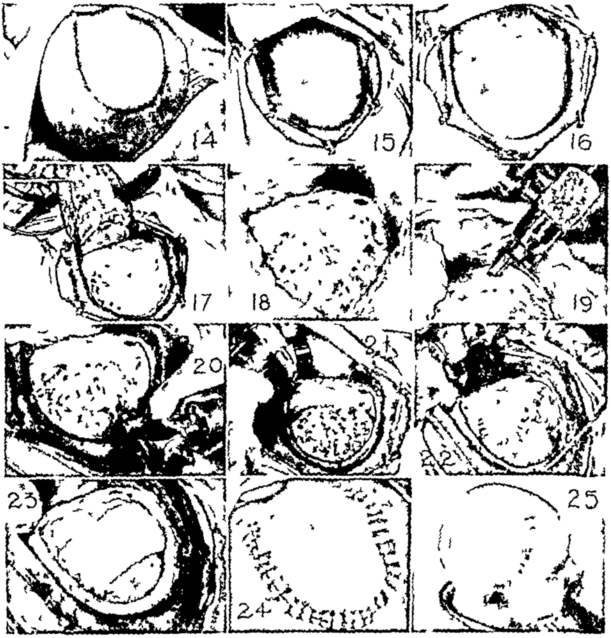

Fig 14 Local anesthesia has been obtained and incision line traced by superficial cutting of skin Fig 15 Hemostatic compressors circumscribing the future flap in position about 1 cm outside the line of incision Fig 16 Incision of scalp has been performed in a single cut down to the bone

Fig 17 Skin flap with underlying tissue pulled upwards leaving bony surface exposed Fig 18 Skin edges as well as flap are protected with compresses kept moist by physiologic salt solution A single trepan hole has been drilled in the bone Fig 19 Introduction of shoe shaped skate guide through trepan hole pushing back the dura

Figs 20 and 21 Portions of the incised area Fig 22 First cutting is finished and another cutting starting from trepan hole is being made in the direction of termination point of first cutting

Fig 23 Beveled edge of bone can be seen Fig 24 Hemostatic suture as well as suture joining both skin edges being finished hemostatic compressors have been removed Fig 25 Cutaneous scar 11 days after extensive craniotomy for removal of brain tumor

A NEW TECHNIC FOR ARTHRORISIS FOR PARALYTIC TALIPES EQUINUS IN ADULTS

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THE frequency of the problem of stabilization of the paralytic foot led Dr. Farill to develop a modified type of arthrorisis, the technic of which is herein described.

Dr. Farill and I have operated on only six cases with this method and sufficient time has not passed for final deductions to be made as to clinical and remote results.

The procedure is carried out in adult patients with paralytic talipes equinus, in whom the strength of the gastrocnemius muscle is conserved, and consists essentially of the following: (1) anteroposterior and lateral stabilization by means of triple arthrodesis (astragalocalcaneus, astragaloscaphoid, calcanocuboid): (2) limitation of anteroposterior movement to the required degree by means of arthrorisis (posterior).

TECHNIC

Spinal anesthesia is used, as a rule; puncture is made between the fourth and fifth lumbar vertebrae and novocaine (0.1 to 1.5 gm. dissolved in 4 to 5 cc. of cerebrospinal fluid) is injected. Any diffusible stimulant, cardiotonic and hypertensive, is injected intramuscularly. Blood is expelled from the limb to be operated upon by gravity, light massage and the application of an elastic rubber constrictor.

The operative field is prepared with tincture of iodine, alcohol and ether. The patient is placed in lateral decubitus. The foot and leg as far as the malleolus are protected by the usual draping method.

The instruments needed are the usual ones employed in general and bone surgery.

An external lateral incision is made, beginning a little below and posterior to the fibula and extending to a point one or two centimeters anterior to the outer borders of the tendons of the extensor longus digitorum. This incision is slightly concave towards the fibula and divides the skin, subcutaneous tissue and dorsal fascia (fig. 1).

By means of hooks the skin and tendons are retracted towards the internal border of the foot and downward. At this point a step from Dr. Lowman's technic is used: A thin, osteoperiostial flap is cut with a wide chisel at the level of the head of the astragalus and scaphoid, parallel to the external surface of the foot, the interarticular lines between the astragalus and the scaphoid, the calcaneus and the cuboid and the astragalus being exposed (fig. 2).

With a narrow chisel, the head of the astragalus, the cartilage of the posterior surface of the scaphoid, the anterior articular surface of the calcaneus and the posterior articular surface of the cuboid are sectioned in the direction marked by the dotted line. Likewise, two parallel cuts are made: A thin layer is sectioned from the lower surface of the astragalus and another, from the upper surface of the calcaneus, in such a way that their surfaces coincide exactly (fig. 4).

The head of the astragalus is freed from cartilage and is then cut in small pieces which are kept temporarily in a small amount of warm normal saline solution.

The patient is now changed to the ventral position and an incision seven centimeters long is made the length of the inner border of the tendo Achillis, beginning with its insertion in the calcaneus. The tendon is retracted outward, without touching its sheath, some of its fat being retained, and the posterior surface of the tibia is exposed (fig. 5).

With either a chisel or a saw a graft measuring four centimeters long and one centimeter wide is taken from the tibia as shown in Fig. 5. This graft is shoved downward, inward to the astragalus and toward the calcaneus, just enough to serve as a buffer and to limit the anteroposterior movements as much as is desired. The graft is sutured to the tibia with kangaroo-tendon, and the hollow space left by the chiseled graft is filled with the small pieces of bone from the head of the astragalus which were previously placed in normal saline solution (figs. 6 and 7).

The wound is closed by suturing in layers; a sterile dressing and a bandage are applied to maintain the proper position (90 degrees in men, a little more in women), followed by a plaster bandage or splint, the knee flexed at 120 degrees being included.

trois ans et a donné des résultats satisfaisants

ZUSAMMENFASSUNG

Ein neues Instrument fur Kraniotomie

Verfasser beschreibt ein von ihm erfundenes Instrument fur Kraniotomie und seine Methode der Blutstillung im Perikranium und Diploe Mit diesem Instrument vermag er runde, ovale, viereckige oder dreieckige Stucke aus dem Schadel zu schneiden Blustillung im Perikranium wird erzielt durch Umstechung mit Nadeln ausserhalb des Schnittes, wobei jede Nadel durch eine Klemme straff gehalten wird Die Blutstillung in der Diploe wird durch den Knochenstaub erzielt, der beim Schneiden des Knochens erzeugt wird Die Erfolge mit dieser Methode am allgemeinen Spitale in Mexiko wahrend drei Jahren waren zufriedenstellend

SUMARIO

Un instrumento nuevo para craneotomía

El autor describe un instrumento el cual ha sido hecho para hacer craneotomias y su método para producir hemostasia del cuero cabelludo y del diploe Con este instrumento él es capaz de cortar el craneo en una forma circular, oval, cuadrada ó triangular Hemostasia del cuero cabelludo se obtiene introduciendo agujas afuera de la incisión, cada aguja es sostenida firmemente con una pinza. Hemostasia del diploe es asegurada por el polvo de hueso producido al cortar el hueso. Los resultados en el uso de este instrumento en el Hospital General, Mexico City, durante tres años ha producido resultados satisfactorios

RIASSUNTO

Uno strumento nuovo per la craniotomia

L'autore descrive uno strumento che egli ha inventato per fare la craniotomia e il suo metodo per produrre l'emostasi del pericranio e del diploe Con questo strumento egli può tagliare dal cranio un'area circolare, ovale, quadrata o triangolare. Si è ottenuta l'emostasi del pericranio, inserendo aghi fuori l'incisione, ciascun'ago tenuto fermamente in posto per una pinza. Si ottiene l'emostasi del diploe dalla polvere dell'osso, prodotta col tagliare l'osso I risultati dell'uso di questi strumenti nell' Ospedale Generale nella Città di Messico per tre anni sono soddisfacenti

* * *

The John Hunter Medal and the Triennial Prize were presented to **Col. L. E. H. Whitby** at a recent meeting of the Council of the Royal College of Surgeons of England The Jacksonian Prize for the year 1939 was awarded to **F. F Rundle** for his essay on 'The Pathology and Treatment of Thyrotoxicosis', and a certificate of honorable mention was awarded to **N. M. Harry,** of Melbourne for an essay on the same subject The subject approved for the Jacksonian Prize for 1941 was Injuries to Peripheral Nerves, with Especial Reference to the Late After Results'

The Medical Society of New Jersey held its one hundred and seventy-fourth annual meeting June 3, 4 and 5 at Haddon Hall, Atlantic City In addition to sections on the various specialties combined sessions were held for medicine and gastroenterology, pediatrics and radiology and surgery, obstetrics and gynecology **Dr. Hyman I. Goldstein,** of Camden, was chairman of the gastroenterology division and **Dr. Thomas M. Kain,** also of Camden, was chairman of the medicine division

heat and Brown's splint may be applied to the foot and leg; if signs of marked compression are present, the plaster splint may be loosened by means of lateral incisions or by cutting a posterior H. Control roentgenograms should be taken. The patient is allowed to walk with crutches in two months, without bearing his weight on the affected foot. Progress in walking will be gradual, depending upon the degree of osteogenesis. Orthopedic appliances will be helpful.

The combination operation described above can be performed easily by surgeons accustomed to this type of work. Theoretically the method has the following advantages: Tenotomy of the tendo Achillis is unnecessary; the graft is strong and remains in its own niche; the graft receives stress longitudinally, and this action, added to that of the bone fragments used to fill the hollow, is osteogenetic (according to Wolf's laws). With time, the graft will increase in strength instead of, as happens in other cases, being resorbed with exercise and the passage of time.

Patients operated upon in this manner are still under observation and study.

SUMMARY

The author describes a new technic for the surgical treatment of paralytic talipes equinus in adults. Arthrodesis and arthrorisis are combined, with modifications. Triple arthrodesis (astragalocalcaneus, astragaloscaphoid, calcanocuboid) is employed to effect anteroposterior and lateral stabilization; posterior arthrorisis is used to produce limitation of anteroposterior movement to the required degree.

RÉSUMÉ

Arthrorise: Une nouvelle technique pour le pied bot équin paralytique chez l'adulte

L'auteur décrit une nouvelle technique pour le traitement chirurgical du pied bot équin chez l'adulte. Il combine, avec quelques modifications, l'arthrodèse et l'arthrorise. Pour obtenir la stabilisation antéro-postérieure et latéral, l'auteur a recours à une triple arthrodèse: astragalo-calcanéale, astragalo-scaphoïde et calcanéo-cuboide; l'arthrorise postérieure nous assure la limitation, au degré désiré, du mouvement antéro-postérieure.

ZUSAMMENFASSUNG

Eine neue Technik für die Arthrodese im Pes Equinus Talus Paralyticus des Erwachsehen

Der Auter beschreibt eine neue chirurgische Behandlungs-methode. Arthrodese und Arthrorisis sind mit gewissen Veränderungen vereinigt. Dreifache Arthrodese wird verwandt um antero-posteriore und laterale Stabilisation zu erzielen. Posteriore Arthrodese wird verwandt um eine Beschränkung der antero-posterioren Bewengung bis zu einem gewünschten Mass zu beschränken.

SUMARIO

Una técnica nueva para artrorisis por tálipes equinus paralítico en Adultos

El autor describe una técnica nueva para el tratamiento quirúrgico de tálipes equinus paralítico en el adulto. Artrodesis y artririsis son combinadas, con modificaciones. Artrodesis triple (astragalocalcaneos, astragaloescafoidea, calcanocuboidea) es empleada para afectar estabilización antero-posterior y lateral; artrorisis posterior es usada para producir limitación de movimientos al grado requerido.

areas is as follows: The first lumbar nerve innervates a band of the abdominal wall parallel to Poupart's ligament, including the suprapubic region, the root of the penis and the superior half of the scrotum The second lumbar nerve innervates the superior and anterior part of the thigh up to a horizontal line passing through the middle part of the scrotum, while the third lumbar nerve continues from the midportion of the thigh down to the patella—an area of trigonal form. The fourth lumbar nerve supplies the median and lateral surfaces of the thigh, the anterior surface of the knee and the anterior and internal surfaces of the leg, or is Y-shaped. The fifth lumbar supplies the lateral surface of the leg and foot, terminating at the plantar surface of the fourth toe and the dorsal surface of the first toe

The first sacral nerve supplies the skin of the foot not innervated by the fifth lumbar The second sacral nerve innervates the posterior surface of the thigh and leg. The third, fourth and fifth sacrals, with the coccygeal, innervate the skin of the gluteal region, the perineum, the anterior part of the penis and the lower half of the scrotum

As for the viscera, the second, third and fourth sacral nerves innervate the rectum, the first lumbar, the lower end of the ureter, the first four sacrals, the mucosa of the bladder; the fifth lumbar and the first three sacrals, the prostate, the first lumbar, the epididymis In women the uterus, particularly the cervix, is innervated by the first four sacrals.

In regard to the muscles, the first lumbar nerve innervates the quadratus lumborum, external oblique, transversalis and cremaster muscles, while the second lumbar nerve innervates the psoas minor, iliacus, pectineus, adductor longus and adductor brevis, rectus femoris and gracilis, the third lumbar innervates the psoas, iliac, pectineus, adductors, rectus femoris, obturator externus, gracilis and crureus. The fourth lumbar innervates the psoas magnus, adductor longus, adductor brevis, rectus femoris, obturator externus, crureus, gluteus maximus, gluteus medius, tensor vaginae femoris, obturator internus and the muscles of the anterior part of the leg except the gastrocnemius. The first sacral nerve innervates the gluteus, tensor vaginae femoris, pyramidalis, obturator internus, crureus, muscles of the posterior region of the thigh and muscles of the leg and foot The second sacral innervates the gluteus maximus, pyramidalis, obturator internus, semitendinosus, crural biceps, gastrocnemius, soleus, flexor digitorum, the muscles of the foot (plantar surface) and the muscles of the perineum The fourth sacral innervates the levator ani, coccygeal and perineal muscles. The fifth sacral and coccygeal nerves supply the coccygeal muscle.

INDICATIONS FOR USE

It is well to know the distribution of the sensory, visceral and motor paths, in order to modify the technic according to the requirements of the particular operation In fact, the use of barbotage, when operating on the leg, for instance, makes considerable difference If barbotage is not resorted to, the sensibility of the anterior surface and lower end of the leg may remain intact with only the skin of the popliteal space being numbed, for the nerves of these teguments are innervated by the lumbar plexus and can become infiltrated without barbotage, if a very diffusible analgesic substance is used In operations on the abdominal viscera incomplete anesthesia may result from neglecting to practice barbotage or to use a diffusible anesthetic In operations on the testicles or ovaries, the injected solution must reach the dorsal nerves

The belief that spinal anesthesia should not be used in obstetrics because it impedes the uterine contractions is in-

BONE GRAFT OF THE MANDIBLE WITH PROSTHETIC OBJECTIVE

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MEMBERS of the dental profession are indebted to the World War for the fact that they have been compelled to solve many prosthetic and faciomaxillary problems. Much is owed to J. Lebedinsky, dental surgeon of the hospitals of Paris and Chief of the Prosthetic Institute, and to M. Virenque, Intern of the hospitals of Paris, from whose experiments and technic excellent results have been obtained.

The present war reminds us that the number of wounded men in each combat was so great that the necessity arose to replace those lost at the front and to reestablish physically the injured as quickly as possible so that they might return to the front, or so that later they, as invalids, would not be a burden to the state.

Bone-grafting in general has been carried on in Mexico for the past thirty years with results which were anything but uniform. Dr. Rosendo Amor is pessimistic over the results of bone-grafting and bases his opinions upon his clinical observations, regardless of the operative technic employed. In reviewing the benefits of bone-grafting, failures often are overlooked. In order to avoid disappointments, it is essential to know the causes which determine failure and the elements which are indispensable for success. It is necessary to know as far as possible whether the grafted bone will survive and whether its total survival is certain or problematical.

Whether only the cortical layers of the bone remain alive and the medullary portions of the transplant necrose before they become vascularized is a moot question. I am of the opinion, based upon my own observations, that the majority of grafts do survive.

The survival of the transplanted bone depends principally upon its age and the perfection of its contact with the adjacent tissues. As a rule, grafted bone adheres to the contiguous tissues, and, if the total graft comprises all the layers of the bone, including the *periosteal* and *endosteal* components, it is logical to conclude that it has a greater opportunity to survive.

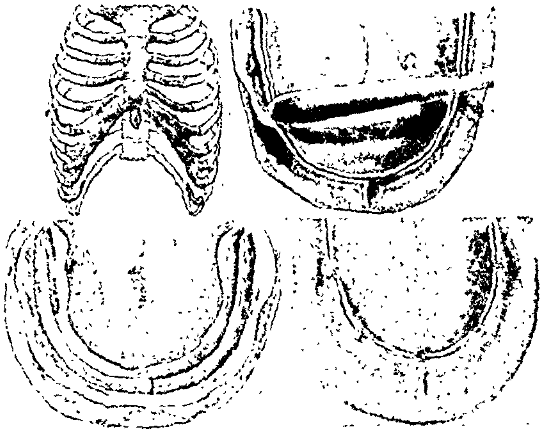

Fig. 1. Upper left. A piece of bone about 0.5 cm. in thickness is removed from superior border of sixth rib.

Fig. 2. Upper right. Incision made along alveolar border of maxilla to receive bone graft.

Figs. 3 and 4. Lower left and right. Suturing of incision with fragments of graft in correct position.

The dental surgeon is at times confronted with the necessity of making a denture, especially a lower one, when the entire alveolar process has regressed to such an extent that the *prosthesis* cannot possibly remain in place.

I have devised a method of treating these cases by replacing the loss of the should be considered as a block anesthesia Only rarely should this form of anesthesia be used above the diaphragm

RÉSUMÉ

Quelques observations sur l'anesthesie rachidienne

L'auteur considere les contre indications et les indications pour l emploi de l'anesthesie rachidienne se basant sur l'etat du malade et sur le siege de l'operation Il faut envisager cette anesthésie comme un blocage Rarement, on y aura recours pour les operations audessus du niveau du diaphragme

ZUSAMMENFASSUNG

Uber Spinalanasthesie

Indicationen und Contraindicationen fur die Verwendung von Spinalanasthesie sind aufgefuhrt, je nach der Lage des Operationsfeldes und der Verfassung des Patienten Diese Anasthesieform sollte nur als Blockanasthesie angewandt werden Ihre Verwendung oberhalb des Zwerchfells sollte nur in Ausnahmefallen erlaubt werden

SUMARIO

Algunas consideraciones en anestesia espinal

Contraindicaciones é indicaciones para el uso de la anestesia espinal es presentado, basados en la localización de la operacion y las condiciones del enfermo Ésta debe de considerarse como anestesia regional o bloqueo Solamente en casos raros debe de usarse esta anestesia en operaciones arriba del diafragma

RIASSUNTO

Alcune considerazioni sull'anestesia spinale

Contra-indicazioni ed indicazioni per l'uso dell'anestesia spinale sono presentate, basate sulla locazione dell'operazione e la condizione del paziente Dev'essere considerata come anestesia di blocco Solo in casi rari e permesso usare questa forma di anestesia per operazioni piu alte del diaframma

* * *

The Ninth International Congress of Accidents and Diseases of Industry will be held in Rome in 1942 Topics to be discussed are prophylaxis of tetanus treatment of recent accidental wounds and the use of massage exercise and mechanotherapy in the treatment of injuries At the last meeting of the Permanent International Committee of the organization 18 new members were appointed Among these were **Dr Sayers** of the Division of Industrial Hygiene National Institute of Health Washington D C **Prof Manuel A Manzanilla** Mexico, D F , and **Dr Eduardo Bello** and **Dr Carvallo,** Hospital Arzobispo Loayza, Lima Peru

Dr Louis Hamman, professor of clinical medicine at the Johns Hopkins University, was elected president of the Association of American Physicians at the meeting held in Atlantic City He succeeds **Dr Gerald B Webb,** of Colorado Springs **Dr J H Means,** of Boston, was chosen vice president

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The meeting of the sixth International Congress for Experimental Cytology, scheduled to meet in Stockholm from July 25 to August 1, has been indefinitely postponed because of the international situation

SURGICAL TREATMENT OF PELVIC PERITONITIS

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THE increase in the frequency of pelvic peritonitis is due to the increase in the number of criminal abortions. The fatal results are due either to delay, or to imprudent haste, in operating. My observation of cases treated during the last eight years in my gynecological service has lead me to summarize the indications for surgical treatment in pelvic peritonitis of genital origin.

It is not necessary to describe the well-known symptoms or to differentiate this condition from appendicitis, intestinal occlusion, ileitis (especially terminal) or torsion of a genital tumor, because these can be easily identified. There are, however, two pathologic conditions with which pelvic peritonitis may often be confused. The following case histories are presented to illustrate this point.

CASE REPORTS

A woman giving a history of gonorrhea was examined in my service in December, 1936, because of an acute syndrome of the lower abdomen, accompanied by severe general symptoms. Locally rigidity and severe pain were present in the hypogastrium and iliac fossa. The vaginal cul-de-sacs appeared to contain a resistant mass. A diagnosis of suppurative pelvic peritonitis was made and a colpotomy was performed. No pus was present, but instead an irregular mass occupied the floor of the pelvis; this mass extended backwards and to the left and was definitely fluctuating to the right. A vaginal hysterectomy by hemisection was then performed. Doyen technic, whereupon the mass was found to be a fibroma; suppurative salpingitis was present on the right side.

Two months later another patient was brought to my service with symptoms similar to those presented by the previous case, the difference being that the neoformation occupied the entire pelvic cavity. Colpotomy proving unsuccessful, laparotomy was performed, at which a large, embedded fibroma was found, accompanied by bilateral suppurative salpingitis, more marked on the left than on the right.

DIFFERENTIAL DIAGNOSIS

The marked clinical similarity between acute pelvic peritonitis and suppurative salpingitis, when the latter appears in women who also have fibromas, should be kept in mind in order that one may be prepared for the necessary surgical procedure.

Ruptured tubal pregnancy is another condition with which pelvic peritonitis may be confused. To avoid error in these cases, in addition to a urinary prolan test one should obtain a careful history, especially of the early stages of the condition. In tubal pregnancy internal hemorrhage causes tachycardia and hypotension; in pelvic peritonitis this does not occur.

TYPES OF PELVIC PERITONITIS

Pelvic peritonitis of genital origin may be divided into three groups corresponding to the anatomic lesions which are manifested by different symptoms and to the surgical procedures required.

A. Hyperseptic Type. In the hyperseptic type the peritoneum and cellular tissue of the true pelvis are infiltrated

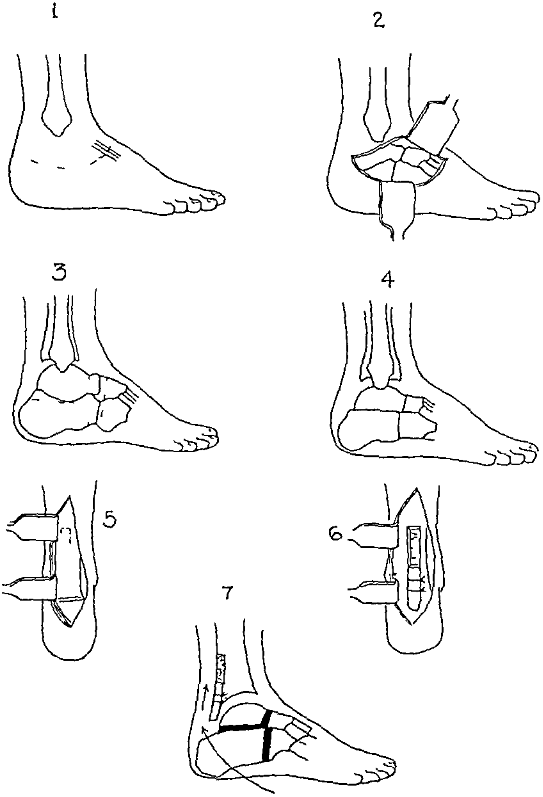


Fig 1 Lateral incision beginning a little below and posterior to fibula and extending to point 1 or 2 cm anterior to outer borders of tendons of the extensor longus digitorum Fig 2 Skin and tendons retracted with hooks towards internal border of foot and downward

rection of dotted lines is used to section head face of scaphoid anterior articular surface of Fig 4 Incision 7 cm in length is made along inner border of tendo Achillis beginning with its insertion in calcaneus

Fig 5 Posterior surface of tibia exposed Dotted line indicates graft which is removed from tibia with a chisel or saw Fig 6 Hollow space left after removal of graft is filled with small pieces of bone previously removed from astragalus Fig 7 Graft is shoved downward into bed made by chisel as shown in Fig 3

A lateral sketch shows the static effect of the combination of arthrodesis and arthrorisis (fig 7)

Postoperatively, the patient's general condition should be watched c

semblent (appendicite, occlusion intestinale, iléite et torsion due à un néoplasme). Il est plus difficile de reconnaître le type exacte de la péritonite qui afflige le malade. Ce diagnostic détermine le traitement qu'on doit adopter. Obtenez du malade des renseignements précis. La péritonite est ou hyperseptique ou séreuse ou plastique et purulente. Pour la péritonite hyperseptique un traitement médical peut suffire; pour la péritonite séreuse on opère que dans les cas graves. Le traitement opératoire donne d'excellents résultats dans les cas de péritonite plastique et purulente.

ZUSAMMENFASSUNG

Chirurgische Behandlung in Beckenperitonitis

Differentialdiagnose zwischen Bekkenperitonitis und ähnlichen Erkrankungen (Blinddarmentzündung, Darmverschluss, Ileitis, und Torsion infolge von Tumor) ist ziemlich leicht. Es ist etwas schwieriger den Typ der Peritonitis zu erkennen, damit eine richtige Behandlung eingeleitet werden kann. Dies kann durch eine genaue Krankengeschichte erleichtert werden. Drei Arten können unterschieden werden: eine Hyperseptische, eine Seröse, und eine plastisch-eitrige. In der Hyperseptischen kann interne Behandlung genügen; in der Serosen ist Chirurgie nur in sehr schweren Fällen anzuraten und in der Plastisch-Eitrigen gibt Chirurgie ausgezeichnete Erfolge.

SUMARIO

Tratamiento quirúrgico de la pelvi-peritonitis

La diferienciación entre la pelvi-peritonitis y enfermedades que se paresen (apendicitis, oclución intestinal, ileitis y torciones de tumores) es relativamente facil. Es mas dificultoso determinar el tipo exacto de la peritonitis presente asi que tratamiento propio sea instituido. Esto es hecho mas facilmente si una historia clínica cuidadosa se ha hecho. Tres tipos son reconocidos: (1) hiperséptico, (2) el seroso y (3) el plástico purulento. En el hiperséptico, tratamiento médico puede ser suficiente; en el seroso, cirugía es aconsejada en los casos severos; en el purulento plástico, circugía produce resultados excelentes.

RIASSUNTO

Trattamento chirurgico nella peritonite pelvic

Il differenziare fra la peritonite pelvica e malattie che la somigliano (appendicite, occlusione intestinale, ileite e torsione dovuta a un tumore) è relativamente facile. E un po' più difficile determinare il tipo esatto di peritonite presente, in modo che si possa stabilire il trattamento giusto. Questo si fa più facilmente se si prende una storia esatta. Tre tipi si riconoscono; l'ipersettico, il seroso e il purulento plastico. Nell 'ipersettico, il trattamento medico può essere sufficiente; nel seroso la chirurgia è utile solo in casi gravi; nel purulento plastico, la chirurgia produce risultati eccellenti.

* * *

THE NEXT INTERNATIONAL ASSEMBLY OF THE INTERNATIONAL COLLEGE OF SURGEONS WILL BE HELD IN MEXICO CITY, MEXICO, AUGUST 10-14, 141.

RIASSUNTO

Una tecnica nuova per artrorisi, per piede storto paralitico equinus negli adulti

L'autore descrive una tecnica nuova per il trattamento chirurgico del piede storto paralitico equinus negli adulti. L'artrodesi e l'artrorisi sono combinati con modificazioni. L'artrodesi tripla (astragalo-calcaneo, astragalo-scafoide, calcanocuboide) è usata per effettuare stabilità anteroposteriore e laterale; l'artrorisi posteriore si usa per produrre una limitazione del movimento antero-posteriore al grado voluto.

Book Reviews

A Century of Belgian Poetry (1830-1930). By Francisco Castillo Nájera, Surgeon, Man of Letters and Diplomat, Present Ambassador of Mexico in Washington. Pp. 548. Editors: Brussels, Labor, and Madrid, M. Aguilar.

NAJERA, in this work, achieves a veritable triumph of talent and perseverance in which he shows his prowess as historian, critic, biographer and bibliographer in over 250 translations from Belgian poets. His translations reveal skilled knowledge of the poetical melody of the French language, faithfully portrayed in Spanish without losing the charm of the original text.

Castillo Nájera demonstrates in his work facility and genius in letters, science and diplomacy.

Versatility in the arts and sciences has been shown by surgeons like Billroth, that formidable leader of major surgery who attracted the medical world to his clinical amphitheatre, where he demonstrated his skill with the scalpel, and who relaxed in private musicales at his residence, where he displayed his skill on the violin.

The surgeon, in fulfillment of his serious and at times life-saving tasks and responsibilities, may appear foreign or cold to the sensibilities and emotions of poetry, music and the beaux-arts, and yet history records attainments in the arts and sciences by the masters of the operating room.

When medicine was in the domain of the philosophers, the astronomers and the mathematicians, the gifts of poetry, music and the arts were by-products of the master minds which encompassed universal knowledge.

The travels and diplomatic experiences of Castillo Nájera have been world-wide and unique, affording him rare opportunities to satiate his literary proclivities and, in the field of diplomacy, to acquire understanding of the intricacies of political problems which he successfully meets with tact and sagacity.

The historical sketch of the poetical expression in the French language and poetical expression in the Flemish language are engaging and of rare beauty.

Those conversant with the French and Spanish languages will find in this work of Castillo Nájera an historical gathering of lyric gems over the century just closed (1830-1930) that cannot be perused in any other work like this, for it doesn't exist.

Desidero Roman

The Surgery of Injury and Plastic Repair. By Samuel Fomon, Ph. D, M.D., Formerly Major, Medical Corps, U. S. Army. Price $15. Pp 1,400, with 925 illustrations Baltimore: William Wood & Company, 1939.

IN an attempt to encompass within one volume the entire literature on traumatic surgery, the author has combed the leading periodicals and publications and from this material he has

(*Please turn to page 280*)

concept of a process which is substantially developed in the connective tissue structure of the peritoneum or in the subjacent connective tissue.

A surgeon should also be a physiologist, for, according to the words of Leriche and Policard, "He who would understand the pathologic must begin by learning the normal state and its variations. The more a surgeon experiments on the necessity for knowing the why and the wherefore of conditions, the more he will search into pathologic physiology for guidance in therapeutics."

Our therapeutic ideas must be obtained from previous physiologic reasonings, to gain ultimate confirmation clinically.

Clinically and pathologically pelvic cellulitis is classified as neoplastic and inflammatory, even when the former is complicated by the latter.

CELLULITIS OF NEOPLASTIC ORIGIN

Pelvic cellulitis of neoplastic origin differs from other forms in differential diagnosis and treatment. Not all neoplastic lesions grow by infiltration from neighboring tissues, since all benign tumors of interstitial or central growth develop by the increase in volume of their own mass with repulsion of the surrounding tissues, in which case the connective tissue resembles benign cellulitis of inflammatory origin without infection. In cases of malignant neoplasms, tumors of the connective tissue are generalized by the blood stream, metastases invading the walls of the veins to the extent of causing the formation of emboli at different points which frequently respect the connective tissue — that exuberant web, rich in lymph, so often affected by the malignant neoplasias of epithelial type whose cells engraft themselves successively in the interstices of the supporting connective tissue, carried down by the lymph current, invading the lymphatic parts (Sampson Handley's penetration) to the extent of producing cancerous lymphangitis, adenitis and embolism. Helbit even calls it lymphophilic cancer in opposition to hemophilic cancer, which directly invades the blood stream by primary embolism. These are the only cases deserving to be called neoplastic cellulitis. In Mexico the conception of pelvic cellulitis has tended to be circumscribed: The inflammatory processes are regarded in an eminently clinical spirit, even when based on the physiopathology of the interstitial connective tissue, although some neoplastic cases could be included, especially malignant tumors of epithelial origin, which by their pathogenesis resemble inflammatory cellular infiltration.

Mexican clinicians have advanced the knowledge of pelvic cellulitis scientifically and therapeutically in an endeavor to understand the physiopathology of connective tissue.

CELLULITIS OF INFLAMMATORY ORIGIN

Pelvic cellulitis has many clinical aspects, from the sudden and fulminating type with acute and grave symptoms, to the insidious invasion which appears like a recurrence of a previous pelvic inflammation.

Bacterial invasion which produces acute pelvic cellulitis blocks the reticular structures; these are bathed in lymph, absorbing toxic and microbial products, the results of cellular disintegration. Their pathogenic action is increased by the dilatation of the capillaries which, bathed in a lymph of an altered physicochemical constitution, are unable to bring about nutritive changes in the fixed cells and in those of lesser mobility. The bacteria, surrounded by this plasma, are destroyed; capillary occlusion impedes the ingress of mobile cells, while the migratory cells aggravate the condition.

Interstitial edema drowns the cells, so to speak, and by compressing the nerve endings, provokes diffuse pain.

alveolar process with a bone-graft, using the technic described below

The operation consists essentially in taking pieces of bone from the superior border of the sixth rib (fig 1) about one-half centimeter in thickness, and of whatever length is desired, this transplant is then grafted to the mandible The curve of this bone segment is similar to that of the mandible The loss of the transplant from the chest is of no moment to the patient

The graft is adjusted beforehand and cut into fragments which are made to conform to the curve of the maxilla. An incision is then made along the alveolar border (fig 2) the edges of the wound are separated and the two fragments of bone are inserted in the wound, care being taken to incise the periosteum so that the graft will be in contact with the mandible The operation is concluded by suturing the incision with the fragments of the graft in correct position (figs 3 and 4)

SUMMARY

The author describes his method of compensating for regression of the alveolar process to obtain support for a prosthesis The operation consists in removing pieces of bone from the superior border of the sixth rib and grafting them to the mandible. The graft must include all layers of the bone and must be in contact with the mandible

RÉSUMÉ

Les greffes osseuses du mandibule pour objectif a prothetique

L'auteur décrit sa methode de compenser à la régression de l'apophyse alveolaire et de créer un support pour une prothèse. Il enlève un segment du bord supérieur de la sixième côte. Ce segment est greffé dans le mandibule. Le greffon doit renfermer toutes les couches de l'os et doit être en contact avec le mandibule.

ZUSAMMENFASSUNG

Knochenimplantat in den Unterkiefer mit Prothesenwirkung

Verfasser beschreibt seine Methode der Bildung eines Halts für Prothesen in Fallen von Retrognathie des Alveolarfortsatzes. Die Operation besteht in der Entfernung von Knochenstücken vom obern Rande der sechsten Rippe und Einlegung in den Unterkiefer. Das Transplantat muss alle Knochenschichten enthalten und dem Unterkiefer dicht anliegen.

SUMARIO

Injerto de hueso de la mandibula con objetivo de prótesis

El autor describe su método de compensación por regresión de los procesos alveolares para darle un soporte por prótesis. La operación consiste en tomar pedazos de huesos del borde superior de la sexta costilla é injertandolos en la mandibula. El injerto debe de incluir todas las capas del hueso y debe de estar en contacto con la mandibula.

RIASSUNTO

L'innesto dell'osso della mandibola con l'oggettivo protesi

L'autore descrive il suo metodo di compensazione per il regresso del processo alveolare per provvedere un sostegno per una protesi. L'operazione consiste del rimuovere pezzi di ossa dall'orlo superiore della sesta costa e dell'innestarli alla mandíbola. L'innesto deve includere tutti stratti dell' [illegible] e devè essere in contatto con la [illegible]

connective tissue. Various types of phlegmons of the hypogastric sheath, broad ligament, pelvirectal space, etc., result — processes which are no longer pelvic cellulitis but the consequences of special conditions which have imprinted a destructive character upon the cells and tissues. These represent necrosis of the connective tissue, while cellulitis per se is a more or less prolonged state of inflammation, which leads either to sclerosis, resolution of the focus, or to suppuration. In cellulitis of the pelvic organs, therefore, the process will be found more diffuse; inflammation will appear in connective tissues exceptionally rich in lymph spaces, representing a prolonged phase of the cycle of inflammation.

The question arises as to whether lack of suppuration means that pelvic cellulitis is not present or whether it is less likely to be present in cases which develop adhesive processes without suppuration.

In infiltrations involving the perirectal or periuterine tissues many days pass before the process becomes diffuse or before suppuration can be detected. This phase represents pelvic cellulitis. When necrosis or suppuration results, it is because a cellulitic process has been added to another cause — that of capillary embolisms and necrosis of the tissues through vascular obstruction. Inasmuch as pelvic cellulitis may involve all the pelvic organs, abscess formation often occurs in the broad ligament, the infundibulum and the ischiorectal fossa.

In pelvic cellulitis due to interstitial edema, humoral alterations, etc., the obvious treatment points to correct stasis by drainage, perhaps, by means of a posterior colpotomy. Where suppuration is manifest in specific organs, extirpation should be considered. Diathermy and moist heat give excellent results in many cases. Streptococcic infections may be treated by chemotherapy (sulfonethylmethane) in large doses, 5 to 8 g. a day in fractioned doses, every four hours, always given with sodium bicarbonate. Other measures are specific or nonspecific vaccination with aseptic pus; transfusions or immuno-transfusions; or serum therapy in large doses. Dr. Francisco Reyes, who has used soluble mercurochrome with great success, reports that it is of great value in these cases, although care must be exercised in the handling of large doses.

Surgery is effective in cases in which a focus of infection is somewhat distant from the pelvis, such as an ulcerous cervicitis, causing inflammation of the tissue of the pelvis. With elimination of the focus of infection, the pelvic cellulitis usually clears up. Electrosurgery is the best treatment for these cases. Electrocoagulation of an infected cervix, drainage of the uterine cavity, extirpation of Bartholin's glands or ample excision of abscessed periurethral glands should be detected and properly remedied.

INFECTIONS OF INTESTINES

The second group of cases of pelvic cellulitis includes affections of the rectum, such as proctitis, strictures, infected carcinoma, phlebitis, hemorrhoids, fistulas, diverticulitis of the colon, tuberculosis and rectocolic polyps.

In nearly all these infections, it is through the lymphatic channels that microorganisms (streptococci, colon bacilli and staphylococci) invade the rectal cellular tissues and the perirectal tissues, or, following the branches of the hemorrhoidal artery, reach the lymph nodes and the connective tissue surrounding these.

Therapeutic measures should be general and should include the extirpation of the focus of infection. Vaccines and chemotherapy are indicated in the presence of streptococci and staphylococci. Operative treatment should aim at extirpation of the causal lesion. Infected hemorrhoids should be removed, with ample drainage of the perianal tiswith serum and the connective tissue is gangrenous Under these conditions the circulatory, respiratory and nervous symptoms which predominate bespeak the profound intoxication of the organism Abdominal manifestations are less impressive and pelvic manifestations are absent except for increased resistance perceived on palpating the abdomen

B Serous Type Serous pelvic peritonitis forms the second group In this type there is formation of false membranes which enclose a number of small collections of serum These give rise to general manifestations of a less serious nature than do the others and present, in addition, a frank reaction in the infraumbilical region Spontaneous pain rigidity and meteorism are limited to the hypogastrium and the iliac fossae and indicate freedom from involvement of the upper part of the abdomen Pain provoked by pressure increases towards the pubic symphysis and is more severe when compression is released (Blomberg's sign) Upon bimanual examination a high, utero adnexal induration is felt, in which the presence of fluid is doubtful

C Purulent Type In plastic purulent pelvic peritonitis the symptoms are localized in the lower abdomen and the pelvis The most characteristic symptom is a more or less voluminous plastic induration in the cul de sac This may be of liquid consistency, resistant or fluctuating

TREATMENT

In these cases the surgeon should endeavor to distinguish between the case in which an impetuous operation would lead to death and the case in which a prompt intervention may be a life saving measure

In hyperseptic pelvic peritonitis, sustained general and medical treatment may be sufficient Operation is contraindicated in these cases A woman with hyperseptic pelvic peritonitis following an abortion was brought to my service in April, 1936, during the night and operated upon by my assistant Laparotomy *cleansing, disinfection and canalization* (Mickulicz technic) were performed, death occurred four hours later I have seen many similar cases and I believe that it is best to refrain from operating in these instances

In cases of serous peritonitis, or those of the second group, in which general symptoms are less marked, the surgeon must exercise watchful waiting, and only in the case of aggravation should one proceed to perform laparotomy, with adequate drainage These cases usually prove fatal and only slight hope may be offered even by prompt surgery Death usually occurs suddenly

Finally, in plastic purulent pelvic peritonitis, comprising the third group, surgical interference by immediate posterior colpotomy is indicated and the results are usually excellent

SUMMARY

Differentiation between pelvic peritonitis and diseases which resemble it (appendicitis, intestinal occlusion, ileitis and torsion due to tumor) usually is relatively simple The exact type of pathology is somewhat more difficult to determine Careful history taking is of utmost importance Three types are recognized (1) the hyperseptic, (2) the serous and (3) the plastic purulent In the hyperseptic, medical treatment may be sufficient In the serous, surgery is advisable only in severe cases, in the plastic purulent variety, surgery yields excellent results

RÉSUMÉ

Le traitement chirurgical de la péritonite pelvienne

Il est facile de différencier la péritonite pelvienne des maladies qui lui re-histology, physiology and physiopathology of the pelvic organs and tissues. The condition may arise from disorders of (1) the female genitalia, intra and extra-pelvic; (2) the rectum and its surrounding tissues; (3) extrapelvic organs abnormally introduced into the pelvis; (4) the male genitalia; (5) and the urinary apparatus. The development of each type of disorder and the treatment recommended are described. All wounds of hollow viscera, caused by injury or rupture of the hollow viscera, should be treated surgically to prevent cellulitis from developing.

RÉSUMÉ

La cellulite pelvienne

L'auteur nous présente le développement de la cellulite pelvique en se basant sur l'histologie, la physiologie et la physiopathologie des organes et des tissus pelviens. La cellulite pelvienne peut avoir son origine dans les organes génitaux intra- ou extrapelviens de la femme; dans le rectum et les tissus environnants; dans des organes normalement extrapelviens mais déplacés dans le bassin; dans les organes genitaux mâles; dans l'appareil urinaire. Le développement et le traitement de chacun de ces desordres est décrit. Toute plaie des viscères creux demande un traitement chirurgical afin de prévenir l'infection du tissu cellulaire du bassin pelvien.

ZUSAMMENFASSUNG

Beckenbindegewebsentzündung

Verfasser erläutert die Entwicklung der Beckenbindegewebsentzündung an Hand der Histologie, Physiologie und Physiopathologie der Beckenorgane und Gewebe. Der Zustand kann entstehen auf der Basis von Störungen in 1) weiblichen Genitalien, innerhalb und ausserhalb des Beckens, 2) Mastdarm und umgebendes Gewebe, 3) extrapelvine Organe, die ungewöhnlicherweise ins Becken verlagert wurden, 4) männliche Geschlechtsorgane, 5) Harnogane. Die Entstehung der verschiedenen Formen von Störungen werden beschrieben mit der einzuschlagenden zweckmässigsten Behandlung. Alle Wunden von Gedärmen nach Unfall, oder Risse in den Eingeweiden müssen chirurgisch angegangen werden zwecks Verhütung einer Bindegewebsentzündung.

SUMARIO

Celulitis de la pelvix

El autor explica el desarrollo de la celulitis de la pelvix basandose en a histología, fisiología y fisiopatología de la pelvix, organos y tejidos. La condición puede presentarse de desordenes de (1) los genitales femeninos, intra y extrapelvicos; (2) el recto y los tejidos alrededor; (3) organos extrapelvicos introducidos abnormalmente dentro de la pelvix; (4) los genitales masculinos; (5) y el aparoto urinario. El desarrollo de cada tipo de desorden y el tratamiento recomendado son descrito. Todas las heridas de las viceras huecas, causadas por lesiones y roturas, deben de ser tratadas quirurgicamente para evitar desarrollo de celulitis.

RIASSUNTO

La cellulite pelvia

L'autore spiega lo sviluppo della cellulite pelvica sul baso della istologia, fisiologia, e fisiopatologia degli organi pelvici e tessuti. La condizione puo provenire da disordini (1) delle parti genitali femminili, intra e extra pelviche; (2) il retto ed i suoi tessuti circostanti; (3) organi extra-pelvici in modo anormale introdotti nel bacino; le parti genitali maschili; (5) e l'apparecchio urinario. Lo sviluppo de ognuno di questi tipi di disordine e la cura raccomandata, sono descritti. Tutte ferite dei visceri cavi, causate da lesione o rottura dei visceri cavi, devono essere curate chirurgicamente per prevenire lo sviluppo della cellulite.

PELVIC CELLULITIS

[illegible] ROJAS AVENDAÑO, M.D., F.I.C.S.
[illegible] the Mexican Academy of Surgery
MEXICO CITY MEXICO

EACH school [illegible] tries to create its o[illegible]logy according to its [illegible]ies and investigations. Certain [illegible] which are meaningful to some [illegible] vague ideas to others. For example, to the French school hepatic insufficiency has been a fruitful field of hypothetical work, which, through clinical biological and pathological study has been the foundation for all studies in hepatology

The term cellulitis is to some only an abstract entity within whose imprecise boundaries there would be room for a great deal of pathology, but to certain pathologists it implies clinical facts and biological concepts by means of which far-reaching therapeutic effects are obtained.

Connective tissues are the fundamentals of our economy, and although they vary from the least differentiated (embryonal) tissue to the most highly specialized (osseous or cartilaginous) tissue of the adult, they are elements of the same tissue group, and their morphological divergencies are due only to chemical changes of a local order. The entire reticulo-endothelial system is but a form of cellular elements of connective tissue origin.

The histologic characteristic of connective tissue is its formation from collagenous fibers with a system of small elastic fibers anastomosing among themselves to form a fairly dense network which gives it the characteristic of elasticity. In the interstices of their network are the cells, some being autochthonous, the aborigines of this tissue whose activity and nutrition are restricted; others, of a great nutritive and elaborative capacity, are usually mobile and active in phagocytosis, their biologic character enabling them to transform themselves from one type to another (phagocytes, macrophages, histiocytes, etc.). They have the physiologic characteristic of being bathed by the interstitial lymph which individualizes the economy through its peculiar physicochemical composition Each individual has the reactions occasioned by his interstitial lymph, since it is the environment in which the cells live and are fed and at whose expense they exist.

Considered physiopathologically, the connective tissue alone possesses sanguineous capillaries which are in intimate contact with the elements derived from the blood (polynuclear, secretory elements, lymphocytes, etc.), and in close interchange with the pathogens which reach them from it. Not a single process of inflammation takes place except through the modifications undergone by the capillaries and the interstitial lymph, and consequently the connective tissue.

Surgical pathology is to a great extent connective tissue pathology, since this tissue is charged with the task of repair and suffers most in the process of destruction. What is called inflammation of the epithelial tissues (nervous centers, divers glands, etc), is but the inflammation of the connective tissue which acts as a support and as a nutritive base for the nervous and glandular cells, and, in the peritoneum, for the endothelial lining supported and nourished by the subjacent connective tissue which gives it its physiologic and pathologic character.

Therefore, when speaking of pelvic cellulitis, we cannot get away from the were removed 72 hours after the operation. The patient left the hospital August 2.

The infant weighed six pounds, two ounces (2.8 kg.). It was cyanotic and had plastic malformations of the head. It lived only 17 hours.

It was almost impossible to make a correct diagnosis, although the examination was made by a competent and experienced physician. The fetal parts and the reflex movements were not clearly perceived, nor were the cardiac sounds audible, even though the abdominal walls were thin. Vaginal examination gave the impression that the placenta was being felt through the lower uterine segment, an excusable misinterpretation, since the placenta occupied the rectouterine pouch. It was not possible to palpate the uterus pushed to the posterior side of the pubis on account of the pain induced by palpation and also because it was feared that bleeding would be provoked.

Of the 17 cases of extrauterine pregnancy which I have observed, 6 were lithopedions (these sometimes develop in extrauterine pregnancies), the skeleton of the fetus being eliminated through the rectum, vagina and bladder. Cases of this type have been treated by Drs. Calixto Rojas, Rafael Lucio, Juan María Rodriguez, Manuel T. González and Francisco Reyes. In 4 cases (those observed by Drs. Juan María Rodriguez, Alfonso Erdozain, Francisco de P. Chacón and Alberto López Hermosa) the condition was discovered at autopsy. Of the 7 remaining cases, in only 2 was the correct diagnosis made; in the other 5 the diagnosis was made only at operation. In 2 cases total removal of the placenta was done; partial removal was done in the remaining cases, with marsupialization. Four of the patients died and three babies lived.

In the case herein reported, the classical characteristics of ectopic pregnancy were absent, not only because the different parts of the fetus could not be felt but also because the pregnancy developed almost normally until the last month of gestation. In the majority of cases the patients were extremely pale, lost weight and suffered from acute abdominal syndromes, with frequent abdominal pain which did not disappear even after treatment and rest. Moreover, in the majority of cases complete softening of the cervix, a normal occurrence at the end of pregnancy, did not take place. Finally, the cervical canal was only slightly patulous.

SUMMARY

In the case herein reported, a diagnosis of placenta previa, complicated by abdominal pathology, was made in a multipara, aged 30, at term. Abdominal section revealed a living fetus in the abdominal cavity with the placenta in the posterior cul-de-sac. The baby weighed six pounds, two ounces and was living, but it was cyanotic and had plastic malformations of the head. It died after 17 hours. The mother made an excellent recovery. Of 17 cases of extrauterine pregnancy observed by the author, 6 were lithopedions and 4 were observed at autopsy. In the 7 remaining cases, the correct diagnosis was made before operation in only 2; 4 mothers died and 3 babies lived.

RÉSUMÉ

Grossesse extra-utérine avec enfant vivant à terme

Dans ce cas, il avait été posé le diagnostic de placenta previa compliqué par un état pathologique abdominal. La malade, une miltipara, avait trente ans. La grossesse était à terme. Une césarienne révéla dans la cavité abdominale un foetus vivant. L'enfant pesait six livres; il était cyanotique et présentait des malformations plastiques de la tête. Le placenta était inséré dans le cul-de-sac postérieur. L'enfant vecut dix-sept heures. La mère fit une excellente convalescence. Dans dix-sept cas de gros-

A state of profound suffering may ensue because of vasoconstriction by sympathetic action, capillary stasis embolisms in situ and localized necrosis due to insufficient filtering through the injured endothelial walls of the peritoneum

Etiologically streptococci the gonococci and anaerobic bacteria together or alone, are the instigators of pelvic cellulitis In order of frequency the hemolitic streptococcus alone or associated with the B perfringens heads the list followed closely by the colon bacillus

Most of the cases follow puerperal infections neglected uterine ruptures and postabortive sepsis Many however, occur postoperatively following resection of the rectum for cancer, when a suture tears loose and after septic gynecologic operations A perirectal pelvic cellulitis may follow perineal repairs when needles have been passed through the walls of the rectum following supravaginal hysterectomy, it probably represents the extension of an infection from the endocervix or of infected cancer when it follows a hysterectomy for cancer It may follow pelvic appendicitis with gangrene and perforation, or perforated diverticulitis or severe pelvic traumatisms with rupture of the hollow viscera of the pelvis

These infections may result in complications, such as infectious endocarditis, accompanied by general systemic symptoms All possible means, such as anti toxins and anti infectious injections, opsonic therapy, immunization injections, etc , should be employed, ample irrigation of the affected areas, and, if an initial focus of infection is safely accessible, extirpation, if possible, with a minimum of trauma, electrosurgery being the procedure of choice Despite our few therapeutic resources, many of these desperate cases have been saved Only those grave and fulminating infections with tendencies to heart failure result fatally in 24 to 48 hours

The type of pelvic cellular infection which is by far the most frequent and for which the term pelvic cellulitis is reserved is rarely a fatal disease, being announced by rigors and fever and general physical manifestations

Pelvic cellulitis may be a complication of a preexisting pelvic condition, originating in order of frequency from (1) the female genitalia, (2) the rectum and its neighboring tissues, (3) the extra pelvic organs abnormally introduced into the pelvis, (4) the male genital apparatus, (5) the urinary apparatus

INFECTIONS OF FEMALE GENITALIA

Cellulitis originating from the female genital apparatus is most frequent and is usually caused by the streptococcus, with the gonococcus and the colon bacillus as accompanying organisms The infection may be parametric or periadnexal and may occur subsequent to childbirth or abortion with infection, as a complication of gonococcic infection, or as the result of curettement or cauterization The inflammatory process may lead to sclerosis or suppuration Sclerosis develops after a prolonged period of hyperemia, which changes the mature connective tissue into embryonal tissue, a process whereby vasodilations, by attentuated but persistent inflammatory reaction, accelerate their cycle towards sclerosis or maturity This results in adhesions, chronic infiltration and plastic cellulitis which often agglutinates all the affected organs into a single mass, twisting their vascular pedicles and imprisoning the more mobile organs (ovaries, oviducts, etc) in the elastic web of the new tissue

Suppuration develops when the mobile elements are very numerous — a multitude of polymorphonuclear leucocytes surrounding the focus These elements are so numerous in the peritoneum and are of such nutritive and elaborative capacity that when they [illegible] tr [illegible] they free ferments of type which bring abou

sue; fistulas should be debrided with the electric knife and the rectum should be dilated. In cases of lymphogranulomatosis, cancer and diverticulitis proper therapy should be instituted.

It is questionable whether sigmoidodiverticulitis should be operated upon during the cellulitis period or whether this should be done after first resorting to medical treatment. According to Hailes, Ransome, Rea, etc., if intestinal obstruction is not complete the surgeon should not operate for pelvic cellulitis. In the presence of obstruction, gangrene or perforation of an infected diverticulum an artificial anus should be made. Leucocytogenous preparations only increase the stasis and the interstitial edema.

COMPLICATIONS

The coexistence of acute inflammation of the right adnexa with appendicular pathology is relatively common. There may be inflammatory appendicular lesions and ovarian changes (congestive, sclerosing or cystic) which may be relieved by adequate treatment, such as correcting the circulatory disorder by ovarian sympathectomy and freeing of adhesions. This should be kept in mind when operating, and conservative surgery should be performed except when degenerating lesions of the ovary and oviduct are present. In all cases of acute appendicitis which simulate pelvic cellulitis or which complicate it by the abnormal situation of the appendix, immediate surgery is necessary.

The important thing to be emphasized is that the cellular process of a purely congestive type is alleviated by active vasodilation and by stimulation of the sympathetic system. No intervention is indicated, at least at first. Where intestinal occlusion threatens, an immediate operation is indicated, once a definite diagnosis has been made. For like reasons the same conduct is to be followed in mesenteric infarct, whether or not it is complicated by pelvic cellulitis.

The uterine mucosa is a tissue which may develop in unusual places. The pathologic complex is known as endometriosis. This tissue responds to the endocrine stimulus in exactly the same manner as the normal mucosa of the uterus. At each menstruation there are pelvic pain, discharge, manifestations of a mild degree of cellulitis, peritoneal irritation and even hemorrhage. Sometimes during menstruation painful nodules may be felt at the level of the ovaries and a marked inflammatory reaction is present. The distinctive characteristic of these disorders is that they disappear completely between menstrual periods, only to reappear at the next period. Women between the ages of 30 and 40 years who have suffered previously from menometastasis or have undergone operations on the genital apparatus are affected by this disorder. Since the condition is caused by mechanical engraftings of uterine mucous, treatment should be surgery or radiotherapy; if surgery is resorted to, it would suffice to extirpate the grey or blue-colored nodules which are present in the ovary and which are frequently confused with cystic formations, like those scattered at the level of the ligaments or in the pelvic infundibulum.

Pelvic cellulitis, through thrombophlebitis of the plexuses of the prostate, is the most frequent cause of grave genitourinary septic states in the male.

Trauma, whether the result of a direct wound or of rupture of hollow viscera in severe injuries of the pelvis (fracture, contusion, etc.) may provoke pelvic cellulitis of an acute type in which development is rapid and dramatic and the symptoms varied. The condition is relieved by treating the lesions occasioned by the trauma.

SUMMARY

The author explains the development of pelvic cellulitis on the basis of the

In the city of Mexico, he has been surgeon of the General Hospital and of the Military Hospital and for 25 years chief surgeon of the Hospital de Jesús.

At the University of Mexico he has held a professorship of Abdominal and Clinical Surgery in the Postgraduate Faculty and the following professorships in the Medical Faculty: of Surgical Technic on the Cadaver; of Therapeutic Surgery; and at present of Clinical Surgery, a course of which he is also in charge in the Medical Military School. In addition, he has been Chief of Surgical Teaching and Sub-Director of the Medical Faculty. He is a member of the Academy of Professors and a member of the University Council.

He has also been president of the Academy of Medicine, first president of the Academy of Surgery, president of the Mexican Medical Society, first general secretary of the Syndicate of Physicians and Surgeons of the Federal District, vice president of the Franco-Mexican Medical Society, member of the Academy of Science of Mexico and Havana, member of the Japanese Red Cross, member of the Society of Military Physicians, honorary surgeon of the General Hospital, honorary professor of the University of Michoacan, honorary member of the Mexican Society of Traumatology and honorary member of the International College of Surgeons. He has been consultant of the Medical Service of the National Railroad of Mexico and has the rank of Lieutenant-Colonel in the Medical Corps of the National Army.

He has written five books about clinics, in general and in particular, and numerous scientific articles which have been published in the medical journals.

DR. MANUEL A. MANZANILLA, F.I.C.S.

NATIONAL REGENT OF MEXICAN CHAPTER

Dr. Manzanilla was born in the city of Campeche. He was graduated in medicine from the Faculty of Medicine of the University of Mexico in 1924. Thesis, "Study of Acidosis," lauded in France (*Archivos Médicos Franco Hispano Americanos*, organ of the Office of Foreign Relations of the Faculty of Medicine of Paris, IV, No. 8, October, 1925, pp. 626-628).

Courses of Specialization. Gynecology and abdominal surgery in the Faculty of Graduate Studies. Later the Graduate School of Philosophy and Letters, University of Mexico, for three years. Assistant at the Hospitals of Paris and Rome, 1935.

Professional Activities. Surgeon and adjunct surgeon to the chief surgeon of the National Railroads of Mexico (1925-1928). Chief of the Gynecology Service of the Consultorio 4 (1925-1928). Chief of the General Surgical Service of the Consultorio 4 (1925-1932). Surgeon of the General Hospital (1927-1936). Director of the Consultorio 5 (1933-1936). Adjunct of operative technic in the Faculty of Medicine, University of Mexico, 1927-1932.

Congresses and Commissions. Representative and delegate of Public Assistance: Tenth National Medical Congress, Morelia, 1932. Delegate of the Academy of Surgery: First Mexican Congress of History, Oaxaca, 1933, Medical Meetings of the Centenary of the Faculty of Medicine, Mexico, 1933, First National Assembly of Surgeons (General Chairman), Mexico, 1934; various international congresses in 1935. Delegate of the Syndicate of Mexican Surgeons of the Federal District: First National Congress of Pro-

EXTRAUTERINE PREGNANCY WITH A LIVING CHILD AT TERM

AVELINO GAVALDON SALAMANCA, M D, F I C S
MEXICO CITY MEXICO

CLINICAL reports of extrauterine pregnancies are of value because they furnish additional information regarding this interesting condition and because augmentation of knowledge makes the physician better able to diagnose the condition correctly Statistics show that extrauterine pregnancies are occurring with increasing frequency Internal hemorrhage is a dreaded complication which, when severe and not promptly arrested, may cost the patient's life within a few hours Misleading symptoms result in errors in diagnosis and, on occasion, disaster

I treated the following case recently, the patient was referred to me by another physician, the diagnosis being placenta praevia

CASE REPORT

A S aged 30 of Pueblo, Mexico, entered the hospital for treatment June 25, 1936 The family and personal history presented nothing of importance The patient had had four normal pregnancies and no miscarriages Her last menstrual period began October 1, 1935, the first three months of gestation were uneventful For eight days in January, 1936, the patient complained of generalized severe pain in the lower part of the abdomen and lumbar region, accompanied by a small amount of vaginal bleeding and by fever and asthenia The patient was treated for threatened abortion Gradually the pain decreased and finally disappeared From then on her progress was uneventful until May 1, when she fell on her abdomen, severe pain followed but was of short duration, although it returned with increasing fetal movements

The attending physician tried during the first days of June to change the position of the fetus by external maneuvers but without success On June 24 vaginal bleeding set in, and at times the pains simulated those of labor The patient was first seen by me the following day

Examination revealed tenseness of the abdominal wall, tenderness in the right iliac fossa and hyperesthesia of the skin The cephalic pole of the child was at the level of the right hypochondrium and the caudal pole in the left iliac fossa, with the neck turned to the left The fetal heart sounds were heard in the superior right abdominal quadrant On vaginal examination, the cervix was found cylindrical and incompletely softened with little dilatation of the cervical canal, which was pushed back posteriorly The cul de sac was occupied by a uniform soft mass The patient's face displayed anguish Her temperature was 101 3° F, pulse 130 and respirations 30

The diagnosis of placenta previa centralis was confirmed, complicated by some obscure abdominal process (appendicitis?) Low cesarean section was advised The operation was performed under spinal anesthesia On opening the abdomen a brown fluid containing greenish particles, somewhat loosely attached to the intestine, was found, showing the presence of generalized peritonitis While the abdominal fluid was being aspirated in an attempt to locate the appendix, the umbilical cord was encountered The baby was found inside the abdominal cavity, and immediately after it was extracted it began to breathe Part of the membranes covering the infant were removed with the infant, those remaining were removed immediately afterwards The uterus was somewhat enlarged (5 cm to the pubis) and the placenta was adherent to the floor of the posterior cul de sac of Douglas in a cavity, the anterior wall of which was formed by the anterior surface of the sacrum and the investing membranes The placenta was removed in its entirety and the place of its insertion packed with gauze Three drains were left in situ At the conclusion of the operation the patient received a liter of salt solution

The following morning she was extremely ill, with Hippocratic facies and rapid pulse She had not lost much blood A great quantity of serum discharged completely saturating t gauze packing

Two blood transfusions one in the
and another in the evening, were g
more salt solution injected From
steady improvement was noted T

Specialization Courses. Gynecology and abdominal surgery, Faculty of Graduate Studies, later philosophy and letters in the Graduate School, University of Mexico, for three years; graduated in the specialty October 26, 1926. Thesis, "Elements of Gynecomastotherapy." Resident at the Cancer Institute, New York, 1931. Assistant in the hospitals of Paris and London, 1932, and in Paris and Rome, 1935.

Professional Activities. Policlínica del Cinco de Mayo: Chief of the department of surgery and gynecology, from 1923 to the present. Beneficencia Española: Visiting physician, 1939. Dr. López Esnaurrízar Sanitarium: Director, from 1938 to the present. University of Mexico: Adjunct professor in the Faculty of Medicine, 1923-1935; professor of clinical propedeutic surgery in the same school, from 1936 to the present.

Congresses and Commissions. Mexican delegate to the Seventh International Congress of Accidents and Diseases in Industry, Brussels, 1935; First International Congress of Gastroenterology, Brussels, 1935; and to the International Assembly of the International College of Surgeons, New York, 1939; in 1932 attended the International Congress of Surgery held in Madrid.

Honorary Offices and Commissions: Academy of Surgery: Secretary, 1936-1938. Permanent International Committee for the Study of Accidents in Industry: Secretary of the Mexican National Committee of the Seventh Congress, Brussels, 1935. International Society of Gastroenterology: Secretary of the Mexican National Committee of the Second Congress, Paris, 1937, and vice president of the same committee for the Third Congress, London, 1940. International College of Surgeons: National Regent for Mexico, New York, 1939; treasurer Mexican chapter, 1939.

National Societies. Mexican Medical Association, Academy of Surgery.

Foreign Societies: International Society of Gastroenterology, International Society of Surgery, International College of Surgeons.

Honorary Distinctions. Prize of the Federal Department of Labor of Mexico, monograph contest, 1934. Director of the Section of Gynecology of the *Revista Mexicana Medicina.*

Writings. Textbook, "Tratado de Clínica Propedéutica Quirúrgica," Uteha, Mexico, 1939; "Elementos de Ginecomasoterapia" (unpublished); various scientific works in the Mexican and foreign journals, and reports of national and international congresses.

DR. FRANCISCO FONSECA GARCIA, F.I.C.S.

SECRETARY OF MEXICAN CHAPTER

Born in Mexico City. Graduated in medicine from the Faculty of Medicine of the University of Mexico (1925).

Specialization Courses: Gynecology and abdominal surgery (postgraduate courses of the General Hospital, 1928).

Professional Activities: Public Assistance: Chief of the Surgical Service of the General Hospital. Francesa Charity: Chief Surgeon of the Service of the Sanatorium of the Francesa Red Cross. Professor of clinical surgery in the Faculty of Medicine, University of Mexico.

Honorary Offices and Commissions: Academy of Surgery: Voting member of the Board of Directors, 1936-1938. International College of Surgeons, Mexican Chapter: Secretary of the National Executive Council, Mexico, 1939.

National Societies: Mexican Medical Association, Society of Physicians of the General Hospital; Medical Society of the General Hospital, active; National Athenaeum of Sciences and Arts, active; Academy of Surgery.

Foreign Societies: International College of Surgeons, fellow.

Honorary Distinctions: Officer of the *Academia de la Republica Francesa.*

Writings. Scientific works in various reviews and periodicals, national and foreign.

sesses extra utérines observées par l'auteur six était des lithopédions quatre furent des trouvailles d'autopsie Dans les sept autres cas le diagnostic correct ne fut posé avant l'operation que dans deux cas, quatre de ces sept meres moururent, trois enfants vecurent

ZUSAMMENFASSUNG

Extrauteringraviditat mit ausgetragenem lebendem Kinde

Im vorliegenden Falle war bei einer 30 jahrigen Mehrgebarenden die Diagnose Placenta praevia kompliziert durch eine Bauchpathologie am Ende der Schwangerschaft gestellt worden Der Kaiserschnitt ergab ein lebendes Kind in der Bauchhohle mit der Plazenta im hintern kleinen Becken Das Kind wog sechs Pfund, und war am Leben Es was zyanotisch und hatte eine plastische Deformitat am Kopfe Es starb nach 17 Stunden Die Mutter erholte sich glatt In 17 Fallen von Bauchhohlenschwangerschaft des Verfassers 6 waren Lithopadion und 4 wurden bei der Autopsie festgestellt In den ubrigen 7 Fallen war die korrekte Diagnose nur in 2 vor der Operation gestellt worden 4 Mutter starben und 3 Kinder lebten

SUMARIO

Embarazo extrauterino con un niño vivo hasta termino completo

En el caso presentado aqui, un diagnostico de placenta previa, complicado con patologia abdominal, fue hecho en una multipara de 30 años de edad cuando estaba a termino La cesaria revelo un feto vivo en la cavidad abdominal con la placenta en el fondo de saco de Douglas El niño peso seis libras y estaba viviendo, pero estaba cianotico y tenia malformaciones de la cabeza Este murio 17 horas despues La madre hizo un restablecimiento excelente De los 17 casos de embarazo extrauterino observados por el autor, 6 eran litopedios y 4 fueron observados en la autopsia En los 7 casos restantes, en solamente dos el diagnostico fue correcto antes de la operación, 4 madres murieron y tres niños vivieron

RIASSUNTO

Gravidanza fuori l'utero con un bimbo vivente ad intiero termine

Nel caso presentato qui dentro, una diagnosi di placenta previa, complicata per patologia addominale, fu fatta in una multipara, di trent anni, a termine La sezione Cesarea rivelo un feto vivente nella cavita addominale con la placenta nel fondo di sacco posteriore Il bambino pesava sei libbre ed era vivente ma era cianotico e aveva malformazioni plastiche della testa Mori dopo diciassette ore La madre fece una guarigione eccellente Di 17 casi di gravidanza fuori l'utero, osservati da l'autore, 6 furono litopediones e quattro furono osservati a l'autopsia Nei 7 casi restanti, in soltanto 2 casi la diagnosi corretta fu fatta prima l'operazione, quattro madri morirono e tre bambini vissero

* * *

REQUESTS FOR INFORMATION AND APPLICATIONS FOR ASSOCIATE MEMBERSHIP, MEMBERSHIP OR FELLOWSHIP IN THE INTERNATIONAL COLLEGE OF SURGEONS SHOULD BE ADDRESSED TO MR RALPH E OSBORNE, BUSINESS SECRETARY, 2543 PARKWOOD AVE OLE , OHIO

(*Continued from page 280*)

selected the newest and most standardized surgical methods of plastic repair. Included in this single volume are translations and excerpts from the works of English writers. Special surgery of the neck, trunk and extremities are omitted. The most elementary details are described, such as the incision, proper excision of tissue, rearrangement for suturing, types of sutures and suture material, wound dressings, tissue transplants and grafts. More than 400 pages are devoted to the pre- and postoperative care of the patient, fluid, acid and salt balance, anesthesia and shock. The greatest emphasis is placed on the surgery of the nose. The 22 chapters deal with operations in general, tissue transplantation, wounds, burns, the cranium, the eyelid, the auricle, the maxillofacial region, the lip, cleft-lip and cleft-palate, the mandible, the salivary glands, surgical affections of the skin and plaster encasements and prostheses. The impression of too much redundancy is perhaps gained. The voluminous bibliographies should prove of special interest to the research worker.

A.

Cardiovascular-Renal Disease. By Laurence W. Smith, M.D., Edward Weiss, M.D., Walter I. Lillie, M.D., Frank W. Konzelmann, M.D., and Edwin S. Gault, M.D. Pp. 227. New York: D. Appleton-Century Co., 1940.

THIS work is a fine correlation of the clinical, pathologic, ophthalmologic and laboratory findings in cardiovascular-renal disease. It is based on material awarded the Frank Billings gold medal at the scientific exhibit of the annual meeting of the American Medical Association, San Francisco, June, 1938. The importance of fundus studies in this disease is stressed. Two plates in color, black and white illustrations, charts and tables in outline form present the important findings. The bibliography is adequate.

HERBERT A. SACKS

The Principles and Practice of Ophthalmic Surgery. By Edmund B. Spaeth, M.D., Associate Professor of Ophthalmology in the Graduate School of Medicine, University of Pennsylvania, Philadelphia. Cloth. Price, $10. Pp. 835, with 1,035 illustrations. Philadelphia: Lea & Febiger, 1939.

THIS textbook of over 800 pages is a most welcome addition to the already existing literature on ophthalmic surgery. The author not only describes the methods he himself prefers as a surgeon but also the procedures of many other surgeons which serve the same purpose. Advantages and drawbacks of each method are carefully explained. Moreover, many valuable technics of examination (e.g., Walker's method of localization of retinal tears in retinal detachment, gonioscopy, Barkan's method) and operations are quoted verbatim from the original publication. This is of utmost value because it saves the reader from searching the literature.

The material presented is so extensive that details cannot be discussed here. Most of the illustrations are elucidating, especially those describing individual maneuvers during certain intraocular operations. The size of some of the photographs is rather small and the photographic detail might stand a little improvement here and there.

MAX HERZOG

Synopsis of Regional Anatomy. By T. B. Johnston, M.D., Professor of Anatomy, University of London, Guy's Hospital Medical School. Fourth edition. Price, $4.50. Pp. 462, with 17 illustrations. Philadelphia: Lea & Febiger, 1939.

THIS is one of the most excellent books on the subject. It is by far more than a "synopsis." It discusses many details that are not found even in some of our standard anatomies. This reviewer feels that so valuable a book that has so much "meat" warrants explanatory diagrams or a few drawings. On page 3 the terms "clavipectoral fascia" and "costocoracoid membrane" are used synonomously. Did the author mean to give this impression? On page 14 the supraspinatus muscle is discussed. We believe that this all important structure could have been stressed with an additional practical example of function. On page 53 the boundaries of the femoral ring are given, the posterior boundary being considered the pubic bone when in reality this bone is covered by the pectineus muscle in this area. Might not the mention of this muscle let the surgeon know that soft tissue will be met before reaching the pubic bone? Throughout the book italicized words and phrases are used to emphasize important points. This reviewer believes this is an excellent idea. On page 179 the statement is made that internal hemorrhoids are a result of varicosities of the superior, middle and inferior rectal veins. We wonder if the author meant to imply that all three sets of these veins aid in the formation of internal hemorrhoids. A very cleverly outlined glossary is found in the front of the book giving both B.N.A. and revised

(*Please turn to page 286*)

of Military Documentation, Liege 1932 and 1934 member of the Permanent Commission for the Military Medical Congresses 1933 and 1935 Besides this, he has as president of the Mexican Delegation, met with various congresses on disarmament, protection of artistic and scientific institutions and historic monuments, on municipal governments and cities the milk industry international agreement and the signing of friendship treaties, etc assuming on various occasions the character of plenipotentiary He was representative of the Mexican Government to the League of Nations 1933 1935

He has held various honorary commissions in the League of Nations He was president of the 73rd, 74th and 75th periods of the Court, vice president of the 14th Assembly, 1933, president and vice president of various commissions, subcommissions and conferences, 1933 to 1935, and president of the extraordinary assembly on the question of Chaco, 1934

He was a member of the Board of Health of Pekin (1923), honorary professor of the School of Medicine of Varsovia (1933), private counsellor of the Sovereign of Monaco regarding a Congress on the Humanization of War (1934), president and vice president of various international meetings and conferences in various countries, and patron of the Smithsonian Institute, Washington

His diplomatic service includes appointments as envoy extraordinary and plenipotentiary to China (1922-1924), Belgium (1927-1930), Holland (1930-1932) Sweden (appointed in 1932), France (1933-1935) and Austria (1934-1935), ambassador extraordinary and plenipotentiary to the League of Nations (1934) and at present, since February 1935, to the United States of America

Medical Societies In Mexico he is a member of the Mexican Medical Association, National Athenaeum of Sciences and Arts (honorary) Mexican Society of Geography and Statistics (active) Academy of Surgery, Academy of Medicine Academy of Sciences

He is a member of the following foreign societies International Society of Surgery, Belgian Society of Urology, American College of Surgeons (fellow) Association of Military Surgeons of the United States (honorary), International College of Surgeons (honorary), Academy of Medicine of Lima Academy of Sciences and Arts of Cadiz, and others

Decorations He has been decorated with the First Class Medal of Military Merit of Mexico, Grand Crosses of National Orders of Belgium, Bolivia Colombia, Cuba, Chile, China, Ecuador, Haiti, Holland, Panama, Peru, Portugal, Santo Domingo, Grand Official insignia of the Legion [illegible] and of the Spanish Republic, [illegible] Medal of Belgium (the only foreigner [illegible] it by special royal decree), and [illegible] of national and foreign organizations

Publications He has had published scientific [illegible] and other works in various Mexican and foreign periodicals in addition to reports of national and international congresses, and books and pamphlets theses and conferences, as well as literary and historical articles, verses and poems too numerous to list here

GONZALO CASTAÑEDA, M.D., F.I C S

PRESIDENT AND NATIONAL REGENT OF THE MEXICAN CHAPTER

Dr. Gonzalo Castañeda was graduated in 1898 from the Medical Faculty of Mexico Following this he did postgraduate work in Europe

At present he is physician to the Monte and Pachuca Royal Mining Company, professor and director of the Science Institute of the State of Hidalgo, and deputy to the congress of the same state

COLONEL FIELDING H. GARRISON
(1870-1935)

ON THE OCCASION OF THE FIFTH ANNIVERSARY OF HIS DEATH

SOLOMON R. KAGAN, M.D.
BOSTON

DR. Fielding H. Garrison, a pupil of the great Dr. John S. Billings, was an outstanding figure in medical history and bibliography.

He was born in Washington, D. C., on November 5, 1870. His ancestors were French Huguenots. His great, great grandfather, John Garrison, was born in Virginia in 1740. The musket which he used during the Revolutionary War was preserved for years. Colonel Garrison's great grandfather, Samuel Hudson, was born in Maryland in 1760. He was a scholar, a *bon vivant* and a lover of adventure. Garrison's father, John Rowzee Garrison II (1835-1905), was a most just man who for a number of years filled the position of Deputy First Comptroller in Washington, D. C., and later that of Auditor to Porto Rico. From his father Fielding inherited certain Scotch traits and from his mother a French temperament. He was most fortunate in having parents who, recognizing his ability, did their utmost to aid in its development. A deep affection existed between Fielding and his mother and he found unending delight in her vivacity and wit. His father, however, of whom he was very proud, had the greater influence on his life, especially during his boyhood. Fielding told his cousin, Mrs. E. J. Price, that the example set by his father had been a constant incentive to him. The traits that made for Fielding's greatness, his intellect, industry and tenacity of purpose, were inherited from his father. His talent for writing was a heritage from his Garrison ancestors. His father had it to a marked degree, although his busy life in other pursuits prevented its development.

Garrison as a boy was slender, sandy-haired and blue-eyed and enjoyed excellent health. He was a lover of the forests, through which he tramped in endless search for chestnuts and chinquapins, and of all animals, both domestic and woodland. Despite his outward reticence and shyness and his precocious cleverness, he was possessed of a gamin-like sense of humor and was at times mischievous, as shown by an incident related by his cousin, Mrs. Price, concerning one of his customary summer visits to the Garrison farm in Virginia. Mrs. Price had an enormous, snow white pet cat named Rip, which was the pride of her life. Young Garrison conspired with one of her sisters and conceived the idea that Rip's beauty would be greatly enhanced were his whiteness changed to blue. In a very short time Rip emerged, covered from his head to the tip of his tail with great splotches of blue.

Garrison showed during childhood that he possessed courage, as well as a sense of humor. Another incident of his childhood illustrates his courage and also another quality. He noticed once in Glover Hill a large moccasin snake behind one of his cousins. Seizing a poker, which stood beside the fireplace, he waged battle with the venomous reptile until he killed it. The child, evincing the modesty which characterized him throughout his entire life, fled into hiding when the assembled family proclaimed him a hero.

According to the recollections of his cousins, Mrs. Price and Mrs. M. S. Burdette, Garrison was not over ten years of age when he began to study music. His first instructors were Professor Orstensen and Professor Waldecker, both of Washington, the latter a teacher of some renown. As a youth Garrison was particularly fond of the waltzes of Johann Strauss, but later he became an enthusiastic admirer of Beethoven's compositions, an admiration which remained unshaken until his death. However, he once remarked that the "gloriously harmonious discords" of Wagner stirred him to his very depths.

fessionalists Mexico 1933 Commissioned especially by the Academy of Sciences before various academies and scientific societies in Europe 1935 1936 Delegate of the Government of the State of Campeche Second National Assembly of Surgeons, Mexico 1936 and third National Assembly of Surgeons Mexico 1939 Delegate of the National Atheneum of Sciences and Arts First National Congress of Hygiene and Medicine of Industry Mexico 1937 Representative and Delegate of the International College of Surgeons, Mexican Chapter International Assembly of Surgeons New York 1939

Commissions in Foreign Countries Representative and delegate to the Fourth International Congress of Hospitals Rome 1935 Eleventh International Child Conference Brussels 1935 Seventh International Conference of Accidents and Diseases of Industry Brussels 1935 First International Congress of Gastroenterology Brussels 1935 Eighth International Congress of Accidents and Diseases of Industry Frankfort on the Main 1938 Commissioned to study public assistance in Europe 1935 1936

Honorary Offices and Commissions Secretary of the Academy of Surgery 1933 1936 International Society of Gastroenterology voting member of the Mexican National Committee of the First Congress Brussels 1935 vice president of Mexican National Committee of the Second Congress Paris 1937 and of the Third Congress London 1940 Permanent International Committee for the Study of Accidents of Industry vice president of the Mexican National Committee of the Seventh Congress Brussels 1935 Mexican member of the Permanent International Committee Frankfort on the Main 1938 International Society of Surgery Mexican delegate to the International Committee (original organization of the Mexican National Committee) Cairo 1935 International College of Surgeons National Regent for Mexico Geneva 1936 General Secretary for Mexico of the Executive Council of the College Philadelphia 1938 co editor of the JOURNAL Chicago 1938

National Societies Mexican Medical Association Society of Physicians of the General Hospital Yucatan Medical Society National Atheneum of Sciences and Arts (active) Mexican Society of Geography and Statistics (active) Academy of Surgery Academy of Sciences

Foreign Societies International Society of Gastroenterology founder International Society of Surgeons titular International College of Surgeons honorary

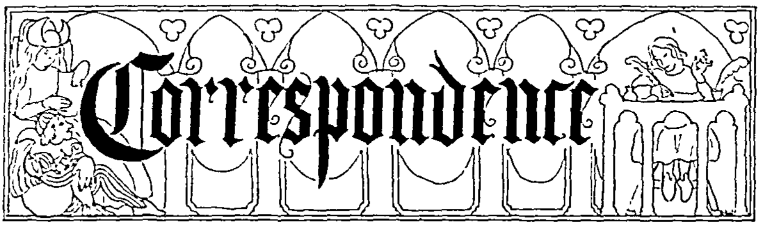
Honorary Distinctions First prize for honoring the memory of Manuel Acuna Seventh National Medical Congress (*Revista Medicina*) Saltillo 1922 Diploma of Honor, Tenth National Medical Congress M r [illegible] tation from the Pr s le [illegible] Venezuela Panamerican M [illegible] racas 1933 Gratitude fr [illegible] from the people of C [illegible] Finlay 1933 Fir [illegible] rci Crespo First National [illegible] ns Garci Crespo 1934 M [illegible] th Permanent International C [illegible] f r the Study of Accidents of I [illegible] Frankfort the Main 1938 Honorary [illegible] International College of Surgeons Geneva 193

[illegible] Various scientific works books pamphlets [illegible] national and international congresses special and encyclopedic reviews national and foreign articles chronicles and discourses on scientific historical literary and artistic themes

DR MIGUEL LÓPEZ ESNAURRÍZAR, FICS

TREASURER AND NATIONAL REGENT OF MEXICAN CHAPTER

Born in Mexico City March 23 1900 Graduated in medicine from the Faculty of Medicine of the University of Mexico Thesis Technic of Intestinal Sutures commented on in the foreign press by Prof Jean Louis Faure in *La Presse Medicale* Paris



Correspondence

FOREIGN LETTERS

ENGLAND

The Editor
J. International College of Surgeons
Chicago, U.S.A.

Dear Sir:

Can any of your readers cite cases, from their own personal knowledge, in which fright during pregnancy has been associated with malformation in the child born subsequently? If so, what were the approximate date of conception and the actual date of birth?

(Signed) EDWARD LAWRENCE, F.R.A.I.

(Note: Answers to this letter will be forwarded at once to the inquirer.)

BELGIUM

(From Our Regular Correspondent)

May 10, 1940

Treatment of Pseudoarthrosis

Dr. Verbrugge presented before the Société Belge de Chirurgie a paper on the treatment of fractures in which, after the normal period for consolidation or several months have elapsed, no trace of callus at the site of the fracture is found upon operative examination, or in which there is clinically a total absence of consolidation, despite the seeming presence of consolidation as shown by roentgenologic examination, or a genuine "pseudoarthrosis," or, finally, a considerable loss of osseous substance.

The author is of the opinion that:

1. All cases of pseudarthrosis are curable; their treatment requires patience, good technic and perseverance.
2. The principles of treatment are the same as osteosynthesis for fresh fractures, likewise for grafts.
3. Cases of pseudarthrosis are always, so to speak, a result of faulty orthopedic or surgical treatment. They are not due to a mysterious factor, but rather to the fact that the osseous extremities are not mathematically in juxtaposition.
4. The osseous graft is doubtlessly a valuable aid in many cases of pseudarthrosis in which the bones are demineralized, but metallic osteosynthesis is the method of choice.

A very interesting discussion points out the importance of immobilization which alone can assure recovery, whether an autograft or os purum is used in the operative intervention.

Treatment of Essential Coxa Vara of Adolscents

Dr. Van Nes presented to the Société Belge d'Orthopédie an interesting communication on coxa vara of adolescents.

Under this name, or under the term of epiphyseolysis of the hip, is included an affection which manifests itself between the ages of 12 and 16 years, occurs in both girls and boys and is characterized by a displacement of the superior femoral epiphysis downward and backward in relation to the neck of the femur.

The author stated that the results of treatment of epiphyseolysis of the hip are better in proportion to the earliness with which treatment is begun; the attention of the medical practitioner should therefore be drawn to this affection. Forced redressement, formerly applied and still recommended at times by certain authors, is to be rejected in cases of progressive epiphyseolysis because of the damage produced at the articulation of the hip. Forced redressement is indicated only in cases of acute epiphyseolysis which are equivalent to fracture of the neck of the femur. In the former cases, redressement must not be followed by immobilization in a plaster cast, but by osteosynthesis with a Smith-Petersen nail. In early cases of epiphyseolysis, treatment with the Smith-Petersen nail prevents a new displacement of the epiphysis and permits patients to resume their occupations after a short time. In advanced cases good results are obtained by palliative operations (sub- or pertrochanteric osteotomies).

DR. DARIO FERNANDEZ FIERRO, F.A.C.S, F I C S, F I C A

Born in Puebla City December 17, 1883 Graduated in medicine from the Faculty of Medicine of the University of Mexico 1910

Specialization Courses Gynecology and abdominal surgery (Pozzi Jayle and Faure), surgical therapeutics (Hartmann and Ockenzy) otorhinolaryngology (Castex), surgery of the nervous system (Sicard and Babinski) in the Faculty of Medicine of the University of Paris 1910-1911, surgery of the neck, in the Kocher clinic, Berne, 1911-1912

Professional Activities Military Health Department Civil surgeon of the Military Hospital of Mexico, 1913-1915 Public Assistance Surgeon of the General Hospital, from 1914 to the present University of Mexico, Faculty of Medicine prosector of descriptive anatomy 1913 1916, professor of descriptive anatomy, 1917-1925, professor of therapeutic surgery 1926 to the present

Congresses and Commissions Representative and delegate from the Public Assistance (General Hospital) to the Second National Assembly of Surgeons (official chairman), Mexico, 1936 Delegate of the Mexican Government to the Seventh Panamerican Medical Congress, Havana, 1938

Honorary Offices Specialty Regent in General Surgery Mexican Chapter of the International College of Surgeons, National Executive Council, Mexico, 1939

National Societies Mexican Medical Association, Society of Physicians of the General Hospital, Medical Society of the General Hospital, active, Academy of Surgery, Academy of Medicine

Foreign Societies International Society of Surgery, International College of Anesthetists, fellow, American College of Surgeons, fellow, International College of Surgeons, fellow

Writings [illegible] scientific works including original technics published in various Mexican and foreign reviews besides reports of national and international congresses articles and discourses in different foreign and Mexican periodicals

THE NEXT INTERNATIONAL ASSEMBLY OF THE INTERNATIONAL COLLEGE OF SURGEONS WILL BE HELD IN MEXICO CITY MEXICO, AUGUST 10-14, 1[illegible]

BOOK REVIEWS, CONTINUED

(Continued from Page 280)

B.N.A. (English translation) terminology. This does much to aid the confused student. The book should be of distinct value, not only to the student, but to the surgeon and general practitioner.

P.

The New International Clinics. Edited by George Morris Piersol, M.D., Professor of Medicine, Graduate School of Medicine, University of Pennsylvania, Philadelphia. Volumes II, III and IV, New Series Two. Price $3 per volume for current year; $5 for back years. Philadelphia: J. B. Lippincott Company, 1939.

EACH of these volumes consists of original articles by well known leaders in the respective fields and is thus a compendium of clinics and evaluated reviews of current advances in the medical arts, with case histories, diagnostic workups and treatment. Worthy of note are the articles on the use of suprarenal concentrate by mouth in the treatment of bronchial asthma, urticaria, herpes zoster and dermatitis venenata; vaccinotherapy in chronic and focal infections; the neurologic and psychiatric aspects of vitamins; the treatment of diabetes during the course of infections and surgical complications; the treatment of neutropenia by splenectomy; the ease of obtaining placental blood for transfusions; allergic reactions to liver extract injections and their relief with adrenalin injections; intractable pulmonary hemorrhage; massive hemorrhage from peptic ulcer; and angina pectoris. The volumes have the advantage of being based on the authors' experience as well as on the current literature.

R.

A Mirror for Surgeons. By Sir D'Arcy Power, K.B.E., F.R.C.S. Consulting Surgeon to St. Bartholomew's Hospital, London. Price, $2. Pp. 230. Boston: Little, Brown & Company, 1939.

FOR more than half a century Sir D'Arcy Power has maintained the high standard of teaching and practice of surgery in the oldest British hospital. Early in life he realized the value of a thorough knowledge of the history of surgery as attested by the editing in 1886 of "Memorials of the Craft of Surgery in England" from materials compiled and left by John F. South. As dean of the British surgical profession he has contributed many biographies of surgeons to the "Dictionary of National Biography."

For the present volume Sir D'Arcy made excerpts from the writings of twenty-two surgeons, from John Arderne (1307-1380) to Sir William Macewen (1848-1924), during which time surgery advanced from an art to an exact science.

John Arderne's treatment for stone impaction in the urethra was as follows: "A stone impacted in the urethra causeth the patient to suffer right great pain and intolerable sorrow. It may be pushed back into the bladder by an instrument of silver or latten such as may be made in very good town by craftsman that maketh pins for women's heads or at the goldsmith's. Many a one have I so holpen. I have seen young men and old in the which the stones have been so great that they could neither come out by the eye of the yard nor be pushed back but always abideth in the middle of the yard. And I cured them easily and quickly in this manner. First, I took the patient and laid him grovelling and then I bound the yard on both sides of the stone with linen bands, so that the stone might nowhere flee away, and with a little incision upon the stone with a lancet or with a razor I had out the stone and after that I sewed the outer skin over the hole with a needle and thread and then I laid on a dressing of white of egg mixed with finely ground wheaten flour and left it for three days, and within fifteen days I had him perfectly cored."

In Chapter LI is found the important contribution of Thomas Gale (1507-1587) in developing three types of slender needles. Gale is best known for his "Textbook on Surgery" (1563-1566).

Space does not permit a discussion of the contributions of the following: Ambrose Paré (1510-1590); John Halle (1529-1568), "a hater of quacks"; William Clowes (1544-1603); Peter Lowe (1550-1610), the founder of Glasgow University; John Woodall (1570-1643) who, as surgeon general of the East India Company, was the link by which the great tradition of Elizabethan surgery was transmitted to the surgeons of the Commonwealth and the Restoration; and Richard Wiseman (1622-1676), who "occupied a definite position in English surgery. He wrote for cultivated Surgeons and was among the first to illustrate his remarks with accounts of cases which had been under his care."

Others worthy of mention are William Cheselden (1688-1752), a versatile surgeon, who first adopted suprapubic lithotomy; Percival Pott (1714-1789), a master teacher of surgery; John Hunter (1728-1793), the experimental surgeon; Abraham Calles (1773-1843); Sir Charles Bell (1774-1842), surgeon and artist; John Collins Warren (1778-1856); Sir Benjamin Collins Brodie (1783-1862), who was a great gentleman at a time when few surgeons were gentlemen; Sir James Paget (1819-1899), who first taught the profession that pathology is the science of surgery; Joseph, Lord Lister (1827-1912); Sir Jona-

Guild Activities

NEBRASKA GUILD ORGANIZED

Dr Edwin C Henry, of Omaha was elected president of the Nebraska Study Guild of the International College of Surgeons at the organization meeting held May 13 in the University club at Lincoln, Neb **Dr R C Olney,** of Lincoln was elected secretary

Plans were made for the first scientific meeting scheduled for the last week in May in Omaha with clinics at the Douglas County hospital in the forenoon and luncheon at the Omaha Athletic club followed by round table discussion At Creighton University Medical school lectures are contemplated on Later Concepts of Anatomy and Physiology by representatives of the faculties of the University of Nebraska and Creighton University Schools of Medicine Dr Henry who is a member of the surgical faculty of Creighton University was appointed chairman of the program committee

—o—

NEW MEXICO GUILD

The New Mexico Study Guild held its second meeting May 27 at the St Joseph s hospital Albuquerque N M **Dr W R Lovelace** conducted a surgical clinic in the morning This was followed by a round table conference on the points presented at the clinic The Guild meeting was held just preceding the meeting of the New Mexico State Medical Association

—o—

NEW ENGLAND STATES GUILD

Lively discussion characterized the four hour scientific meeting of the New England States Guild of the International College of Surgeons, held March 27 at the Hospital of St Raphael New Haven Conn A wet' clinic was held in the morning followed by luncheon at the Union club At the afternoon meeting, Dr Joseph Linde, president of the Connecticut State Medical Society and health officer of New Haven, gave the address of welcome Papers were presented by Drs **James Gettings, Dennis O'Connor, A J Mendillo, William German** and **Robert Nesbit,** of New Haven, **Dr Edward Kirschbaum,** of Waterbury, Conn , and **Dr Andrew McQueeny,** of Bridgeport Conn can be warmly recommended to the progressive man in medicine.

A. T.

The Art of Anesthesia. By Paluel J. Flagg, M.D. Sixth edition. Price, $6. Pp. 491, with 161 illustrations. Philadelphia: J. B. Lippincott Company, 1939.

As the title indicates, this volume deals with the art of anesthesia, principally inhalation anesthesia. Nitrous oxide, ethylene and ether are well covered. In the chapter, "Selection of Anesthetic," nitrous oxide and oxygen, or ethylene and oxygen, or nitrous oxide, oxygen and ether, or ether alone are the only anesthetics considered. The importance of resuscitation and prevention of asphyxial death are strongly emphasized as is also the intratracheal technic. The author presents his own technics well and for those who use those technics, the book will be appreciated.

Chas. J. Betlach

The Medical Career. By Harvey Cushing, M.D. Price, $2.50. Pp. 303. Boston: Little, Brown & Company, 1940.

This collection of essays and biographical appreciation was selected and edited for publication prior to the author's death on October 7, 1939. To appreciate the work to its fullest extent it is necessary to consider Professor Cushing's early education. He was trained in general surgery by Dr. Halsted from 1896 to 1912, during which time he was in constant touch with Welch, Howell and Hurd. He studied under Theodore Kocher and Hugo Kronecker (Bern) and Charles S. Sherrington (Liverpool) in 1900 and 1901.

His first scientific papers were rewarded by his election to membership in the American Association of Pathology and Bacteriology, 1900; American Neurological Association, 1903; American Physiological Society, 1905; charter membership in the American Society of Clinical Surgery, 1903; and fellowship in the American Surgical Association, 1906.

Although he created a school of neurological surgery, his study of each case was that of a general surgeon.

In the "Medical Career" address given at Dartmouth College on November 20, 1928, he said in part: "The ideals and standards of the profession having been the same these past two thousand years or more, the difficulties of living up to them are, it may be assumed, no greater now than they ever have been. Medicine, in short, becomes constantly more exact and scientific in its procedures. It is prompt to adopt for its own use new knowledge of most varied kinds that comes from the chemist, the physicist, and the biologist, whose primary motive is the extension of knowledge, and who have little if any interest in the application of their discoveries by the medical profession. Röntgen could hardly have dreamed that his discovery would revolutionize our methods of diagnosis, the Curies that radium would be an effective agent in combating certain kinds of malignant tumors, or Faraday that his alternating current would some day be utilized in place of the scalpel to make dissection a relatively bloodless procedure. Anatomy today has become a science which delves into the finest microscopic structures of the tissues and their development from the ovum through the embryo. So, too, the scientific study of function as something apart from structure engages the attention of physiologists in many diverging lines of work that call for chemical and mathematical and biophysical knowledge. Biochemistry of the living tissue and secretions of the body in health and disease engage other groups of medical scientists."

It is a legend that the most critical audiences a scientist can address are the American Philosophical Society, the History of Science Society and the American Interprofessional Institute.

"The Humanizing of Science" was presented as the presidential address before the History of Science Society, Washington, December 28, 1934, an excerpt from which follows:

"The chief difference between modern science and the natural philosophy of the ancients is said to lie in our greater inclination to put things to the test of experiment and, while medicine is constantly broadening its scientific background, in a certain sense every drug a doctor administers and every operation a surgeon performs is experimental in that the result can never be mathematically calculated, the doctor's judgment and the patient's response to these prescriptions being variables indeterminable by any law of averages.

"The humanizing of Science may mean one of two things: (1) a revival of interest in the early classics that deal with natural philosophy, and (2) such an enlargement of the scientific outlook as to include in its scope matters which have to do with human welfare as something apart from culture and which are in the long run perhaps more important."

"The Binding Influence of a Library on a Subdividing Profession. Address at the Dedication of the Welch Medical Library of the Johns Hopkins University" was given October 17, 1929, from which we read:

Although when young he enjoyed the theatre, Joseph Jefferson being one of his favorite actors, in later years he obtained greater pleasure from concerts and operas

Garrison entered the Johns Hopkins University in 1889 and received his degree of bachelor of arts in 1890 Three years later he received the degree of doctor of medicine from Georgetown University School of Medicine In 1891 he began his service at the Library of the Surgeon General s Office under Dr J S Billings where he became assistant and later principal assistant librarian Garrison participated in the monumental work of the Index Catalogue and Index Medicus issued by the Army Medical Library From 1913 to 1926 he became editor of the Index Medicus From 1927 to 1929 he was associate editor of the Quarterly Cumulative Index Medicus edited by the American Medical Association

In 1913 he published his monumental book History of Medicine which passed through four editions His classical biography John Shaw Billings was published in 1915 From 1906 to 1935 he published books monographs and original articles dealing mainly with medical history and biography He was mathematician and physicist and wrote several scientific articles on these subjects He was a frequent contributor not only to medical journals but to other periodicals such as *American Mercury Science Times* and *Monthly Science*

Garrison was a teacher of teachers an inspirer a leader in his field and the guide of many authors young and old He served as a storehouse for references for authors teachers lecturers and editors His advice was sought by such men as Osler Welch and Cushing He corrected and made important improvements in numerous books on the history of medicine published by well known authors Many lecturers and authors acknowledged their indebtedness to him Significant is the statement of Sir Humphry Rolleston who wrote An extremely sensitive soul he (Garrison) lived and laboured in a backwater while honours and promotions drifted by in other directions

Garrison was a nervous sensitive individual as a result of certain unfavorable circumstances Library work and the compiling of bibliographies carried on for a number of years exhausted him and interfered to a great extent with his literary and historical work In a letter to Dr Charles Singer he wrote that he had worked under difficulties and that if he had lived in another environment and had had adequate leisure he could have done more and better work

Dr Garrison was appointed a Lieutenant in the Medical Reserve Corps In 1917 he was commissioned Major and in 1918 Lieutenant Colonel From 1920 to 1930 he served in the Medical Corps of the regular army While in service in the Philipine Islands he was greatly affected physically and mentally, by the climate and suffered there a breakdown which made him nervous and eccentric

After retiring from the Army with the rank of Colonel he moved to Baltimore where he became librarian of the Welch Medical Library at the Johns Hopkins University He declined Welch s proposal to become professor of medical history at the Institute of Medical History but he agreed to become resident lecturer Both positions he held until his death

In 1917 the president of Georgetown University bestowed upon Garrison the degree of master of letters stating He who superadds to the exposition of the utility and achievements of the graces of literature richly merits to be signally recognized by his alma mater and to be decorated with the highest honors in her gift

In 1932 Yale University conferred upon him the honorary degree of doctor of letters

On April 26 1910 Garrison married Miss Clara Augusta Brown of New York The Garrisons had three doughters Mrs Shirley Heare Miss Margaret and Miss Patricia Mrs Garrison died in 1939

Dr Garrison died April 18 1935 at the age of 64 at the Johns Hopkins Hospital He was buried in Arlington National Cemetery where his collaborators Dr J S Billings and R Fletcher previously had been buried

Garrison was a many sided man contradictory traits made it difficult to get a clear picture of his personality The best key to the understanding of his characteristics are his letters for he was a brilliant correspondent His letters deal mainly with problems of science and art general literature philosophy criticism and medicine with special reference to medical history they are replete with references aphorisms quotations from great American and European authors and words and sentences in French German and Latin The letters have a biographical interest for they present a picture of the man—his inclinations aspirations interest in music and literature and his attitude toward life

(Continued in August issue)

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Stellectomy and Angina Pectoris

Docteur Jean Govaerts [illegible] stellectomy in angina pectoris [illegible] Medico-Chirurgical [illegible]

He first reviewed [illegible] the disease, in all of which [illegible] unilateral or bilateral stellectomy [illegible] simultaneous resection of two or [illegible] thoracic ganglions. The cases were [illegible] films, orthodiagrams and electrocardiograms [illegible] the patients, taken before and after operation. After reviewing the different theories advanced at the present time by physiologists and surgeons, cardiologists and internists, Dr. Govaerts stated that he believed that reliance could be placed on the theory which holds that the benefits of stellectomy, especially when it is accompanied by more or less extensive resection of certain intrathoracic ganglions, are due to the fact that by this operation the sensory branch, the afferent branch of the reflex, is cut off, which causes the coronary angiospasm, the originator of cardiac ischemia and subsequently of pain at the level of the heart. Dr. Govaerts was of the opinion that the operation is to be recommended in all cases in which the affection does not yield to the usual medical treatment.

Influence of Spinal Anesthesia on the Circulation of the Blood

Professor Hustin explained before the Societe Belge de Chirurgie the results of his investigations on the effects of spinal anesthesia on the circulation of the blood. Some points are of practical value. Disturbances occurring within the twenty-minute period following injection of the anesthetic fluid are often accompanied by the same clinical symptoms and the same circulatory disorders which occur constantly, but to a less marked degree, as a result of decreased pressure of the cerebrospinal fluid during spinal anesthesia. Thus the disturbance or "storm" would be the consequence of an abnormal extension of the percaine towards the medulla.

Before and during the injection of the anesthetic fluid, there may ensue syncope comparable to that described by Lewis under the name of [illegible]ovagal. It is also very similar to the depressor reflex occasioned by pressure on the carotid sinus.

The position of the patient on the operating table sometimes has a marked effect on the circulation of the blood. The ventral position, especially if a cushion is interposed between the abdomen and the table, causes an acceleration of the pulse and a decided fall in blood pressure. These vascular reactions cease immediately upon placing the patient on his back.

Prolapse of Sigmoid Colostomies

Subsequent to a communication of Dr. Jonkheere, the Societé Belge de Chirurgie discussed in detail the question of anatomy and of treatment of prolapse of the iliac sigmoid following the establishment of an artificial anus. There are two types of evagination. The first consists in evagination of the lower end, which is occasioned by active antiperistalsis. The length of the loop of the intestine is the determining etiologic factor. The second type consists of an evagination of the upper segment. Whatever the mechanism by which this complication occurs, strangulation of the bowel may eventuate and necessitate an emergency operation. This operation consists of first sectioning the external cylinder of the bowel at its base. One thus gains entrance to the peritoneal cavity which occupies the space between the external cylinder and the loop occupying its interior. The mesosigmoid is located. Proper hemostasis must be assured. Seizing the internal cylinder of bowel, one draws outward the entire mobilizable portion of the intra-abdominal colon. A ligature is placed on the colic end, below the section, which will cause the respective piece of the intestine to become detached. Finally, this temporarily obliterated stump is fixed to the abdominal wall by several interrupted sutures. But one must constantly bear in mind the possibility of this accident and an endeavor should be made to avoid it. This is best done by meticulous attention to technical details in the performance of the primary operation. A bridge of skin in the form of an inverted "U," with the serifs of the 'U' extended laterally, used as a support for the exteriorized loop of bowel employed in the operation is an admirable aid in this connection.

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This is not only a must book for surgeons but a "source" book for all students interested in the history of mankind W J CARSON

Illustrations of Regional Anatomy By E B Jamieson, M D In seven sections Second edition Price, $15 for complete set $1 50 to $3 50 for individual sections Pp 305 Sections I to V, inclusive Edinburgh E & S Livingstone, 1937 Sections VI and VII Baltimore Williams & Wilkins Co, 1939

IT is impossible to criticize these perfect drawings of Jamieson It is a pity however, that a text does not accompany them Another man's description may not wholly agree with the drawings as presented For example, Jamieson evidently disagrees with the statement that the pretracheal layer of fascia is an offshoot of the ensheathing layer Plate 49 under "Head and Neck" shows no communication between the two We should like to know his version in words as well as pictures Hence if lectures accompanied these drawings, an anatomic Utopia would be to have them bound together Many of these loose-leaf plates are in several colors Their small size (6-1/2 x 8-1/4 inches) enhances their value for use in the laboratory and lecture room

P

Principles of Human Anatomy, with Synopses and Bibliography. By Charles F DeGaris, M D, A M, Ph D, *Professor of Anatomy, University of Oklahoma School of Medicine, Oklahoma City*, Ernst Lachmann, M D, Assistant Professor of Anatomy, University of Oklahoma School of Medicine, and Ralph E Case, B S, A M, Instructor in Anatomy, University of Oklahoma School of Medicine Price, $2 50 Pp 239 Philadelphia Lea & Febiger, 1939

THE book is devoted to various plans of presenting gross anatomy as a course of instruction Plan I is one in which four students are assigned to a cadaver during one semester's work According to Plan II, two cadavers are assigned to four students during two semesters' work Plan III provides that one cadaver be assigned to four students during two semesters These plans are discussed pro and con

The title, *Principles of Human Anatomy*, is somewhat misleading This reviewer believes that the book is more of a guide to dissection rather than a discussion of anatomic 'principles" Texts which ask questions and fail to answer them in the following sentence work hardships on the reader This reviewer believes that if authors wish to stress a clinical point, they might well make a simple statement On page 37 the hypothetical case of an incarcerated *direct* inguinal hernia is discussed One wonders why such a rare entity is chosen rather than the citation of a classical example, such as that of incarcerated indirect inguinal hernia On page 48 the student is referred to various text figures for the disposition of the layers of the cervical fascia Different texts differ on this point

References to various articles in the journals are to be highly commended, especially since these references are further incorporated in the paragraphs of the subjects discussed The general text shows careful planning of dissections and is well done The bibliography is cleverly arranged under the heading of the various systems as well as general references, nomenclature, history, anatomy and x-ray anatomy P

Surgical Applied Anatomy. By Sir Frederick Treves, *Bart* Revised by Lambert Rogers, M Sc, F R C S, F A C S Tenth edition Price, $4 50 Pp 748, with 192 illustrations, 66 in color Philadelphia Lea & Febiger, 1939

THIS is the tenth edition of a work which originally was published in 1883 and was revised from the ninth edition which was prepared by the late Professor C C Choyce Extensive revisions have kept the book abreast of the times Included, for instance, are bronchoscopy and the use of lipiodol in visualizing the tracheobronchial tree

Certain omissions, however, are to be noted On page 210 Figure 59 shows the arrangement of the cervical fascia It is well depicted but it might meet with disagreement in that it shows the prethyroid muscles as having no fascia of their own In the diagram they lie between the ensheathing and pretracheal layers Figure 63, page 227, depicts the thyroid gland as having no *fascial pedicle This reviewer believes this structure* to be surgically important On page 270 the delto pectoral groove is discussed and only four lines are devoted to it Since this is one of the most important surgical landmarks, and since an attempt should always be made to isolate and preserve the cephalic vein, more stress might well have been placed upon this structure

On page 290, line 11, the phrase 'behind the clavicle" is used This evidently is a [illegible] or, since only divisions of the brachial [illegible] . behind the clavicle No doubt 'bel [illegible] toralis minor' was meant The n

This place has been a crucible in which experiments in education have fearlessly been put to the test. There may yet be another that will center in this building if he whose name it bears can long enough be spared properly to direct its cause. Medicine has become so scattered and subdivided that there is a crying need for some one to lead it from the wilderness and again bind it together and whether this can be successfully brought about through the ministration of a chair of the History of Medicine in close cooperation with a great library, like all other things in life depends less on principle than on personality.

It is a matter of unwritten record that some twenty five years ago when on Osler's resignation the first break in the original faculty occurred a revolutionary proposal was made by some of the junior members of the faculty that the structure of the school be reorganized in such a way that the existing departments could be brought together—Hippocratized as it were—by the creation of a super professorship of medicine.

In the modern development of the physician into a scientist have we not lost something precious that may without risk of pedantry be brought back to medicine? Not only has the art of healing *die Heilkunst* come more and more to be lost sight of as the doctor arrives at his diagnosis in the laboratory rather than at the bedside but less and less does he care to be reminded that poetry history rhetoric and the humanities once had close kinship with natural philosophy when the *doctores Medicinae* took the leadership among *Artisti*.'

This collection of essays with those published in *Consecratio Medici* 1928 will remain source books for future generations to study with profit.

W J

The Injection Treatment of Hernia and Hydrocele. By Lawrence Goldbacher M D. Price $5.75. Pp 196 with 58 original half tone and line engravings. Philadelphia L Aubrook & Company 1938.

IT is difficult to analyze this book. It has its place as a reference work in the injection treatment of hernia. It would seem the author is a little too enthusiastic in his statement (page 18) that this method is applicable in 80 per cent of the cases of hernia seen by the average physician. On page 44 the statement is made: The aponeurosis of the external oblique muscle is a thin strong membrane which covers the entire anterior abdomen and is continuous with the fascia lata of the thigh below. The modern anatomist would no doubt disagree with this statement inasmuch as the fascia lata is supposed to commence from the iliac bone and Poupart's ligament continuing medially in the region of the pubic and posteriorly over the sacral regions. If the fascia lata starts over these areas how can it be a continuation of the external abdominis oblique aponeurosis? This reviewer has not as yet become too enthusiastic over the injection treatment of either hydroceles or hernias but believes that it has its distinct place and that a book of this type aids in understanding some of the specific indications requirements and treatment of same.

P

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Editorials

Cancer Philosophy

PUBLICITY and educational competent counsel have done more to arrest the ravages of cancer than any other concept or judgment as yet in vogue.

Publicity, learned publicity, has given light to the laity to see the early signs and symptoms of this, the most dreaded of diseases. Early advice and reasonably radical surgery alone have reduced the vast mortality to its present level, lower than in any age or period in the long history of human diseases.

Early diagnosis, made possible by the intelligent guidance of public knowledge, technical advancement in the radical but cautious extirpation of focal malignancy and anatomical exploration of the routes of metastasis have eradicated the causal nidus as far as the naked eye can demonstrate.

Pre- and post-operative radiation, as adjunct measures of treatment for the destruction of cancer tissue, proximally as well as remotely, have been resorted to in quest of comprehensive annihilation of neoplastic growth, with a tangible measure of statistical encouragement. Researches regarding biochemical and metabolic balances as basic genesis in cancer etiology, blood stream qualitative phenomena, as diagnostic indications in early focal cancer changes, do not, as yet, offer a method of choice in the treatment of cancer.

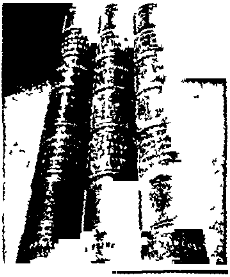
Millions of dollars in gifts and endowments for research, for a possible etiology as a short cut to new methods of treatment to vanquish this dreaded pathological entity have so far made helpful contributions allied to surgery which, when timely and radically employed, have arrested and perhaps cured the process of cancer.

Forty odd years ago the removal of cancer by the then current surgical procedure had prognostic limitations of about 18 months, during which time if no evidence of local or distant recurrence was observed, a hope was entertained that a cure might have been reached.

Then there developed the plan of clinical experience in the surgical management of cancer whereby "follow-up," over a period of years, either confirmed the attainment of a so-called cure (in a small percentage of cases) or because of recurrence (in the vast majority) renewed the uncertainty of prognostication regarding surgery in cancer.

A wealth of knowledge coming to us from experimental research and adjunct methods of treatment plus surgery, such as x-ray, radium and radon, occupy a relatively worthy place in the annals of clinical measures in an effort to achieve a cure.

While experimental findings in cancer causation and development on animals have no practical value so far in solving the problem of origin or etiology, yet all avenues of cancer investigation have increased our knowledge of the phenomena of malignant growth and its inherent toxicity and hemolysis, without making it clear that this neo-



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main strictly individualized in conformity with location and extent of the lesion, all accepted incisions, modifications and extensions possessing more or less merit.

A reasonably comprehensive radical mastectomy with minimum trauma and loss of blood, while the disease may yet be limited to the breast, offers today the better future outlook.

Prophylaxis, obscure as it may appear for discussion, cannot ignore glandular dysfunction, pelvic pathology, lactation and many other clinical observations as possible etiologic factors, as pointed out by Trout in considering preventive therapeutics for malignant disease.

A more important role for the future probably awaits the radiologist, since constant progress is being made by high voltage and improved technic, as well as by the use of irradiation, pre-operatively and postoperatively, which may help to extend its general use.

It is because of its location and anatomical arrangement that cancer of the breast in its early stage is accessible and amenable to surgical cure, more so perhaps than in any other organ, provided extension to the axilla, subpectoral or anterior mediastinal region has not developed. Roentgenology of the chest for mediastinal and lung field involvement should be practiced pre-operatively, especially when the history of the case reveals long duration.

Worthless as research for the casual identity has so far been proved, it is factually admitted that focal manifestation of neoplastic growth, when early recognized and radically extirpated, obviously decreases cancer mortality. Our knowledge of the relative increase in cancer incidence with advancing civilization, as well as the rarity of the disease in simpler life, as among the tribesmen and nomads, leads to measures of prophylactic control of cancer; and if the conquest of this destructive malady is not as yet in our grasp, our means of prevention will doubtless block the spreading force in coming years. Prevention and cure, converging to a common point, hold promise that the long-awaited defeat of cancer may yet be reached.

By positives and negatives we are daily measuring useful and dependable information and making deductions in cancer behavior. Heredity and cancer age, heretofore so potently evaluated clinically, are being given a different appraisal in the light of growing experience, and results in surgery are directly dependent upon the skill and experience of the operating surgeon.

The surgery of cancer is major and intricate. We no longer amputate a mammary gland, we extirpate it, and the technician boldly follows up anatomical routes of dissemination and understands the vulnerable structures for spread of metastasis and attacks all possible nests of involvement with minimum trauma and loss of blood.

No ambitious surgeon should attempt radical cancer surgery without mature and seasoned experience. It is no beginner's job. Mastery of detail alone assures safe surgery and safeguards against bungling and incomplete removal and, what is even more inexcusable, such technical incompetency often spreads the neoplastic process by cutting into diseased tissue and opening up avenues of cellular escape and dissemination.

DESIDERIO ROMAN, A.M., M.D., D.SC.,
F.A.C.S., F.I.C.S. (GENEVA)

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of the Franciscan religious order, which was prepared to serve him. The hospital at that time accommodated only *thirteen patients and five nurses!* But endowed with imperishable enthusiasm, the young Mayos undertook the arduous tasks of overcoming any and all hardships. The little hospital was closed some time afterwards. Soon the Mayos reopened it, staffed by the same corps of nurses; patients came in increasing numbers. Opposition of natives and colleagues continued in proportion to the augmented patronage.

However, as time passed, obstructive efforts gave way to appreciation and a full measure of recognition. The modest St. Mary's Hospital at Rochester, almost unheard of until the end of the last century, by successive additions and the creation of new centers for diagnosis and treatment, was slowly transformed into one of the dependencies of the great Mayo Clinic. The creative genius of the brothers, Will and Charles, thus conquered the prejudices of those whom Aeschylus branded as having heard "half only"; for soon the pursuit of true values brought well-earned laurels.

The greatest merit of these pioneers in surgery consists in their having appreciated the indubitable importance of cooperation between the various groups of physicians, the general surgeon and the specialist. By degrees the professional abilities of the various specialists were welded into a smooth running analytic unit aiming at thorough investigations of all available data which culminated in formulating definite diagnoses and the institution of proper therapeutic measures. The mission of thought and experience, the Mayos pointed out, is better service to the patient; modern medicine does not necessitate a change in the relations between physician and patient, but, on the contrary, organization of physicians and systematic effort instead of single endeavor is the *better way*.

We pride ourselves on the fact that in our country organizations are perfecting themselves along the path blazed by these pathfinders; the teaching clinics of our hospitals, in particular, realize the advantage of unity in thought and action among the experienced and act as guide posts to those younger in medical endeavor. General surgeons and specialists cooperate in diagnosis and treatment, engendering greater competency in surgery; the progressive spirit minimizes rivalry and destructive discord, and a better *esprit de corps* results.

Physically, the Mayo brothers are no more, but the great institutions which they created are built on a firm foundation and will remain imperishable. Their biographers and collaborators mourn the fact that patients will miss the indefatigable courage which they displayed, and their colleagues will miss their energizing inspiration. They have indelibly inscribed their names on the scrolls of surgical advancement. Their deeds remain emblazoned in the memory of those who were privileged to quench their thirst at their fountain of knowledge.

The Mayo brothers were prolific writers. Dr. Will has to his credit 650, and Dr. Charles 413, contributions to surgical literature.

Dr. Will visited Lima, the capital of Peru, accompanied by Dr. Franklin Martin; they were present at sessions of our Peruvian Society of Surgery. Upon both the title of Honorary Members of the Institution was conferred, and through their benevolence all those who were then members of our organization were made Fellows of the American College of Surgeons. On being informed of the death of the Mayos we were bound with grief and felt the distinct loss surgery has suffered. Their memory will remain a blessing and a constant reminder that sincerity of purpose reflects its benefits on giver and recipient alike.

EDOARDO BELLO, M.D., F.A.C.S.,
F.I.C.S., LIMA, PERU

Retroperitoneal Tumors
Dr. William J. Carson - - - - - - - - - - - 331

Acute Cholecystitis
Dr. Clark D. Brooks and Dr. L. Byron Ashley - - - 336

Discussion of Dr. Brooks' and Dr. Ashley's Paper
Dr. William N. Dunn - - - - - - - - - 340

Echinococcus Cyst of the Liver Simulating a Stone in the Common Bile Duct
Dr. Joseph F. Gennaro - - - - - - - - - 342

Recent Developments in the Pharmacognosy of Snake Venoms
Eugene Maier, Ph.D. - - - - - - - - - - 352

Venom in the Treatment of Arthritis, Arthralgia, Neuritis, and Allied Affections
Dr. Paul Butler - - - - - - - - - - - 357

Preliminary Observations on the Use of Snake Venomine in the Treatment of Spastic Paralysis
Dr. Thomas Wheeldon - - - - - - - - - 362

Snakes and Snake Venom
Texas Jim Mitchell - - - - - - - - - - 366

Some Phases of Gynecology of Interest to the General Surgeon
Dr. Maurice O. Magid - - - - - - - - - 369

Idiopathic Multiple Hemorrhagic Sarcoma
Dr. Richard A. Leonardo - - - - - - - - 380

News Items - - - - - - - - - - - - - 382

Book Reviews - - - - - - - - - - - - 387

should be considered a symptom of compensatory hypertrophy, had also been generally accepted with reference to osteitis fibrosa. As increased calcium metabolism imposed a greater strain, the organ was said to become subject to hypertrophy in order to meet the increased demands upon it. It was, therefore, obvious to follow similar trends of thought in connection with morbus Recklinghausen, since here autopsy invariably revealed a parathyroid tumor (Hoffheinz, Maresch and others).

In treating patients suffering from this disease my first thought was to support the gland in its work of controlling the calcium metabolism by administering a potent parathyroid extract to the organism. My idea was that, should this procedure prove a failure, that fact would indicate (contrary to Erdheim's theory) that the new growth found in the parathyroid was to be considered the primary factor; therefore, that nothing but removal of the parathyroid tumor would be effective in setting the disturbed calcium metabolism in order again and curing the disease.

AUTHOR'S CASE REPORT

A patient of this kind was admitted to my department in October, 1924. To begin with, treatment with Collip's parathormone was tried, but with absolutely no result, none of the symptoms improving.

In July, 1925, I decided to implant four parathyroid glands, taken from another patient admitted to the hospital in a dying condition, into the abdominal wall of this patient. Even so, none of the symptoms disappeared; in particular, the calcium content of the urine remained unchanged.

On July 30, I removed a parathyroid tumor (measuring 25:15:12 mm.) from the left inferior area behind the thyroid gland. On microscopic examination this was diagnosed as an adenoma.

As early as a few days after the operation, the patient's condition began to improve. The calcium content of the urine and the calcium level of the blood were considerably lower. The subjective condition improved at once and no symptoms of tetany appeared. As early as four months later, roentgenograms showed denser lime shadows of the bones than before operation. The severe pain of the bones previously present also subsided. For the first time in years the patient was able to sit up in bed and to walk about on crutches.

I reported upon this case in the *Zentralblatt für Chirurgie* (1926). I am, however, going to describe its further development here, since in this patient, unfortunately, the process ran a protracted course, apart from the immediate postoperative improvement, which persisted for six years. Had the method not been repeatedly practiced in the meantime, and found successful, the operative procedure used on this patient would not have gained the importance it has. As it was, the procedure encouraged others in pursuing new operative methods along these same lines, although a number of unsatisfactory results were also reported.

To begin with, the patient had to be admitted to the hospital again in February, 1926, on account of renal calculi and severe arthrosis of the knee joint. Continuous roentgen-ray control, however, revealed improvement of the condition of the skeletal system. The general condition was also good and the calcium metabolism normal. In view of a certain amount of doubt expressed by a number of authors in the literature concerning the significance of my operative procedure, the patient was most carefully watched and exact determinations of the calcium and phosphorus proportion of the blood and urine made. The renal disturbance subsided after conservative treatment and the patient was soon dismissed from the hospital.

At that time a sister of this patient also developed osteitis fibrosa localisata of the tibia, which gave rise to spontaneous fracplastic process is etiologically systemic first, and ultimately local, or local first and secondarily systemic, as generally accepted

Since malignant new growth of atypical cells invading surrounding tissues and disseminating by detachment of cancer cells into lymph channels and blood stream to lymph nodes and viscera (lungs and liver) and to bones, with cells in distant metastasis of the histological characterization of the original focus, wide spread invasion through these routes obviously renders the condition systemic, and to this day we know of no cure or arrest for systemic cancer

Contrary opinion by surgeons who seek to avoid radical mastectomies for carcinoma and who are content with removal of the primary focus, without attempting to explore the axilla on the hypothesis that carcinoma is a systemic disease and not a focal one and furthermore on the assumption that the simple removal of the primary focus affects favorably distant metastasis, is compelling of attention, interest and study

While such claim is probably tenable, in the light of our present perplexities in statistics of clinical experience, the problem of etiology and the results of treatment, further proof and evidence must guide us before abandoning the dictum of radical attack on primary foci and distant involvements

It has long been realized by surgeons and clinicians that certain new growths are more malignant than others, dependent upon the morphology The degree of malignancy is shown to be related to the anaplasia or tumor cell differentiation, so that well differentiated tumors are of low malignancy and the poorly differentiated ones possess higher malignancy

Thus clinical prognosis may be inferred from the grade of malignancy shown to be low medium or high Cancer of the uterus lip, breast, skin, graded by the relation of cellular morphology to the clinical course, have been found to conform

These important factors added to the extent and duration of the growth, its location, extent, possible existing metastasis and age of the patient will determine the kind and character of the treatment

Kunath's "Analysis of Carcinoma of the Breast" coincides with the observation and statistical reports of Lee, Hutchinson and Bloodgood In Lee's opinion tumors of the upper medial quadrant carry the best prognosis, but a study of five years' postoperative survival would seem to reveal that it makes no difference what the location of the growth in the breast may be

More important than the focal lesion in the mammary tissue is the location and extent of the axillary metastasis in prognosis, as Hutchinson points out in his review of published statistics that the average percentage of five years' survival was 35 in cases in which there was present axillary metastasis and 71 3 per cent in cases without axillary extension, thus the duration of life in patients without axillary involvement is twice as long as in patients with axillary metastasis

Finer observations in adenopathies in the axilla include size, location of the nodules, and degree of fixation, with graver prognosis in numerous shot like glands than in one large node, the extension to the apical nodes carrying the heaviest fatality, while skin involvement showed no great prognostic conclusions

Broder's classification of the histologic picture as shown by Greenough at the Massachusetts General Hospital may be of value in prognostic reckoning although Trout is of the opinion that the clinical index is of greater value than histological evidence As to the future of cancer management on the basis of present analysis of clinical evidence, the operative technic can hardly permit of major improvement, the electric knife for certain malignant resections and hemostasis having more applicability nowadays, and as for the incisional approach in any given case, it should re-of their kind operated upon in France; the first American cases of Richardson, Aub and Bauer, Churchill and Coppe; the first English case of Gordon-Taylor and Wiles; the very impressive case of Snapper-Lanz and many more (Crotti, Coryn, Albert, Braine, Rivoire, Gold and Eisenberg, Clairmont, Cuneo, Barr, Bulger and Dixon, Leriche and Jung, Ask-Upmark, Hellstroem, Morelle, Alessandri, Donati, Valls, Wanke, Wichmann, Reischauer, Zuckschwerdt, Hanke, Jacobs, Mondor, Mach and Rütishausen, Oliver).

Recently Churchill and Coppe reported 30 cases upon which they operated, Sauerbruch's Clinic 5, Clairmont and Brunner 3. The number of cases treated in this way is constantly increasing, and I estimate that up to the present over 300 patients have been operated upon. The mortality rate is between 7 and 9 per cent.

Meanwhile I have had the opportunity of operating upon 7 more patients, and have repeatedly referred to the results of these operations in various publications.

I shall now give an idea of the present status of the procedure, particularly stressing its problematic character as it becomes apparent in the clinical field.

So that no confusion may arise concerning the nomenclature, I want to state in advance that, to begin with, I was rather inclined to consider the disorder in question a "dysfunction" of the parathyroid. To make things easier, however, regarding the indication for operation, I now prefer to speak of "hyperparathyroidism," since it is now almost generally accepted that Recklinghausen's disease is connected with a parathyroid hyperfunction. Later I shall refer to the fact that in some exceptional cases enlargement of several of the parathyroids is found, so that it is impossible to assume that the hyperfunction is connected with only one adenoma.

INDICATIONS AND DIAGNOSIS

The condition which most clearly calls for operative removal of the parathyroid adenoma is *ostéose parathyréoidienne* (Lievre); and within this complex, Recklinghausen's disease represents the clearest type of hyperparathyroidism. It is characterized by all clinical and chemical symptoms of parathyroid hyperfunction. Diffuse decalcification of the skeletal system is present; cyst formation is revealed by roentgenograms; and microscopically so-called brown tumors are found.

The generalization of this process may assume various forms and degrees, it may run its course either chronically or acutely. There are always pain of the bones and spontaneous fractures. In roughly 75 per cent of the patients renal calculi are also present, and in proportion to their extent renal insufficiency may develop. There are always symptoms of chronic arthrosis. The neuromuscular system may also be involved, which fact finds its clinical expression in asthenia, muscular atony and excessive electric excitability. Cardiovascular phenomena are constantly present, as are also digestive symptoms (Morelle).

It is, however, the chemical findings that decide the condition: hypercalcemia, which may often reach an excessive degree (cf. Snapper), hypophosphatemia, hypercalcuria, hyperphosphaturia.

When envisaging the removal of the parathyroid, diagnosis must first of all be established on a solid basis, particularly by roentgenograms, and the presence of hypercalcemia should be ascertained with absolute sureness.

But we shall see that even these diagnostic means are rather unreliable. As to differential diagnosis, first of all, localized osseous diseases must be ruled out (osteitis fibrosa localisata, enchondroma, sarcoma, Ewing's tumor, tuberculosis). It should be pointed out that in osteitis fibrosa localisata,

Influence of the Mayo Brothers on Modern Surgical Progress

SINCE these two notable surgeons have died within only two months of each other, it is not amiss to reemphasize their great contributions to surgery Their intense professional activities extended over many fruitful years Not only were they masters in modern surgery, but the period of their active lives covers a period of transition and rapid progress in surgery

Yeomans of New York and others have pointed out that in the final analysis progress in surgery redounds to the benefit of mankind Perfected operative technics and advanced precautions to protect the patient from accidents and complications are, after all, the goal, and many of these originated and were perfected in the great surgical center created by the Mayos

The evolution of surgical progress since the introduction of anesthesia and asepsis has been rapid and remarkable There developed simultaneously surgical specialties The Mayos contributed much to the impetus for such specialization And while specialization was encouraged, the swinging of the pendulum to overspecialization was guarded against and discouraged Correlation and cooperation of the various specialists in evaluating clinical manifestations of given clinical entities pointed the way to correct diagnosis and therapy These surgical ideals were constantly stressed to visiting surgeons to the clinic They left an indelible impression

The Mayos constantly added to their staff distinguished men in all the specialties The *non nobis solum* spirit permeated their worthwhile activities throughout their fruitful careers Endeavor and benevolence pressed personal gain into the background Altruism was manifest in all of their undertakings They were teachers par excellence Silence characterized their substantial contributions to institutions of learning and human advancement

The pioneering efforts of the Mayos in the development of hospital care stands out like a beacon light The culmination of the gigantic task of organizing and operating the Mayo Clinic required many years of tenacity and frequent disillusions At the beginning the Mayos were confronted with much local professional opposition Some inhabitants of Rochester looked upon hospitals not as permanent institutions but as transitory emergency shelters for those suffering from epidemic diseases The Mayos defended their ideals with the ardor and fortitude of rugged pioneers, until they successfully convinced their opponents of the soundness of their efforts and transformed general resistance to their efforts into admiration and confidence

The Mayos, like most great figures who have enriched humanity in one way or another, did not spring from a prosperous family Their father, Dr Worrall Mayo, an English general practitioner, emigrated from Lancashire to the United States before 1860 and settled in Rochester in 1863, after living in several states Often disappointed, he was faced on many occasions with distressing situations, one of which was his encounter with rebellious Sioux His two sons, William and Charles, aided him in his professional work before they graduated from a medical school in Chicago

In 1889 the 70 year old Dr Worrall Mayo, aided by his sons, both now graduates in medicine, participated in the organization of St Mary's Hospital at the request cases was considered due to inadequate operation until further development helped to explain the situation. A number of workers, including myself, have had this kind of experience (cf. *Bruns' Beiträge 162*). Thus Fletcher, Lutz and Pusch described angio-endotheliomatosis of the bones which led to errors in many such cases. Quite recently a similar experience was reported by Rahm (*Zentralbl. f. Chir. 1939*) in connection with hemangiomatosis of the bones.

The latest publications on osseous diseases (Snapper, Geschickter and Copeland, Henderson, Luedin) most instructively demonstrate how difficult diagnosis may be rendered, and it becomes clear that it is exclusively definite hypercalcemia and hypophosphatemia (ascertained by repeated testing) (Clairmont) that decide the diagnosis of hyperparathyroidism.

It should, however, be further concluded that in cases where no definite diagnosis can be established, it is much oftener advisable to make exploratory bone excision than to run the risk of operation.

It is further important that chemical tests must be made in cases of this kind (according to Clairmont), since the decisive pathological changes of the calcium metabolism usually found in Recklinghausen's disease may be absent either when a spontaneous remission sets in, or if marked renal insufficiency is present, or at a stage when the skeletal system has more or less been destroyed.

CHANGES OF THE PARATHYROIDS AND THEIR RELATIONSHIP TO HYPERPARATHYROIDISM

As is appropriate to the purpose of this report, I want to discuss only those findings apparent to the naked eye. In the vast majority of cases of hyperparathyroidism the parathyroid tumor is not palpable. If anything is felt, this is, in my opinion, usually a separate lobe of the thyroid gland.

Therefore, when trying to identify changes of the parathyroid or prove the presence of tumor formation, there is no other way but to operate.

Recently attempts have been made to locate the site of the parathyroid adenoma by roentgenograms taken previously to operation. Some evidence may be thus revealed (obscurity of the mediastinum, a certain amount of displacement in the esophageal area) (Clairmont).

It is by no means always easy to find the tumor even intra operationem. Only 75 per cent of the parathyroid tumors are actually encountered at the normal anatomical site of the gland (Mandl). In the others the site of the tumor is more or less pathological; to only part of these is operative approach possible.

These pathological sites are in the neighborhood of the thymus or the anterior mediastinum, near the carotis communis, the tracheo-esophageal corner; and it is by no means a rare event for parathyroid tissue to be found even within the thyroid gland. The frequency of the latter condition has been shown by Getzova, Eiselsberg, Ballin, Mandl and others. This is helpful in explaining the fact that, when no parathyroid tumor has been found, the unilateral removal of the thyroid gland may be of some use.

It is therefore imperative to ascertain by frozen microscopic section, even during operation, whether the tissue removed is actually the tumor being looked for. A number of operations have been futile, or have given rise to wrong conclusions, because this procedure was omitted.

A number of cases reported in the literature demonstrate the difficulty of looking for the tumor during operation. As early as 1926, Dubois undertook to extirpate a tumor of this kind in a patient suffering from Recklinghausen's disease. Since, however, no tumor was found, he removed two normal parathyroid glands. Naturally the patient did not improve, and it was only after operating upon this patient seven times that

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The Development of Parathyroidectomy during the Last Fifteen Years

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IT was on July 30, 1925, that I first operated upon a tumor of the parathyroid in a patient suffering from osteitis fibrosa generalisata (Recklinghausen's disease). The method used in this operation greatly stimulated surgical research, so that since that time it has become the method of choice to look for and remove adenomas of the parathyroid in a disease in which the majority of cases had, up to that time, been held incurable. In the meantime, the range of indication has been so widened that a critical discussion of the development of this operative method during these 15 years may be of interest. It will not of course be possible to consider in detail all questions connected with this subject, for this would far exceed the scope of a single paper. As regards physiology and pathology of the parathyroid, the microscopical peculiarities of this organ, and its manifold relations to other endocrine organs, I refer the reader to the lectures on parathyroidectomy read at the French Surgical Congress in 1933 (Welti and Jung) and the International Surgical Congress in 1935 (Chifoliau and Braine, Donati, Leriche and others).

Up to 1925 Erdheim's theory, implying that enlargement of the parathyroid glands (also found in rickets and osteomalacia)

2. Administration of parathyroid extract or implantation of parathyroid tissue has no effect on Recklinghausen's disease.

3. In a number of experiments, on the contrary, administration of parathyroid extract produced a condition of the bones and kidneys very closely resembling Recklinghausen's disease.

4. Within the endocrine system no primary tumor which is at the same time compensatory and nonpathogenetic in nature has ever been encountered (thyroid, hypophysis, adrenals).

5. It is highly improbable that in connection with an organ which is bilateral in nature and develops in pairs, only one of those three or four formations should become subject to compensatory hypertrophy and bear alone the burden of an increased strain.

The very rare cases of hyperparathyroidism involving more than one parathyroid gland will be referred to later, but in the great majority of cases an adenoma is found only in one parathyroid gland.

6. In the numerous cases of genuine hyperparathyroidism reported in the literature, the elimination of normal parathyroid tissue has in no case been able to check the condition. Improvement or cure was only effected if, following several operations, it was eventually possible to discover the parathyroid adenoma and remove it (Lievre, Mandl, Dresser and Hampton, Churchill and Coppe and others).

These arguments are mentioned only in order to prove the primary importance of one single parathyroid tumor for hyperparathyroidism or Recklinghausen's disease. This is all the more important since Leriche (International Surgical Congress, 1935) declared that he himself still adhered to Erdheim's theory.

In this connection I take the liberty of mentioning that I am in possession of a posthumous manuscript of Erdheim's given to me by his relatives. It contains the draft of a lecture on this subject, in which Erdheim, the first to establish, with his historic experiments on rats, the relationship between the parathyroid gland and the skeletal system, declares that he is now fully in agreement with my view on the primary importance of the parathyroid tumor, and holds it responsible for the decalcification process taking place in the osseous system. This draft clearly demonstrates that Erdheim renounced his former opinion, according to which the parathyroid tumor was of only secondary importance and was explained as being due to compensatory hypertrophy.

There are still a good number of confusing exceptions, which do not, however, break the rule; they have been reported upon by Crotti, Albright, Bloomberg, Castleman and Churchill, and Churchill and Coppe. The latter reported on six cases treated by them which presented diffuse hypertrophy of all parathyroid glands and in which, although there was actually every evidence of Recklinghausen's disease, not a single parathyroid tumor could be detected. Eleven further cases are quoted from the literature by these authors, based partly on autoptic, partly on operative records (Hellstroem, Bergstrand, Hanke, Hunter, Abel).

Naturally such findings cause us to reflect, and should lead us, even after an adenoma has been found during operation, to inspect the remaining parathyroids. I emphasized the importance of this attitude in my article on the technic of parathyroidectomy (*Deutsche Ztschr. f. Chir.* 240, 1933). The surgeon has consequently to envisage the problem of whether or not to remove the multiple enlarged organs, or how much of them to remove, in order to secure the effect desired—on the other hand running the risk of producing severe tetany (cf. Oliver Cope).

By the way, it is interesting to note that Churchill and Coppe hold the hypophyseal ture of the bone This osteitis fibrosa localisata (not Paget's disease) later resulted in the growth of a sarcoma which made it necessary to amputate the leg

In the patient with morbus Recklinghausen, however, the lime content of the skeletal system continously increased as time went on, so much so that Kienboeck (Vienna) expressed the opinion that the case might not present morbus Recklinghausen at all, but Paget's osseous disease In *Bruns' Beitrage* (160, 1934), I vigorously contradicted this assumption, suggesting that it may well have been that the skeletal system with its severe lime deficiency accumulated, after the successful operation, such large amounts of calcium that the picture became strongly indicative of a pseudo Paget In this I have been supported by Looser, Snapper, Chifauliau and Braine, Rivoire, and others

Anyway, after six years of improvement, my patient's condition grew worse By September, 1932, he once more had a renal calculus There was hypercalcemia again, the phosphatase level of the blood was lowered, the bones once more became decalcified and the patient was laid up

At the instigation of Julius Bauer, I decided to operate upon this patient again (October 18, 1933), trusting that there would be another parathyroid tumor Since, however, none was found, either in the entire neck region or in the mediastinum, I removed a large portion of the thyroid gland intending to remove simultaneously an intrathyroidal adenoma, should there be one Actually, microscopical examination made it clear that two parathyroid glands had been removed during this thyroidectomy The one had been situated within the thyroid tissue, the other just touched the outer area According to C Sternberg's view, the former was more than normal size, but there were no other pathological findings

It was significant that

1 After operation no tetany developed, although the patient had been deprived of three of his parathyroid glands It was, therefore, obvious that somewhere in the organism there must be a substantial amount of active parathyroid tissue

2 Although the parathyroid activity had been greatly reduced, there was no improvement of the condition and no change of the pathological calcium metabolism Today we are well acquainted with the fact that removal of normal parathyroid tissue is not likely to influence this condition, which fact supports the theory that the parathyroid tumor is the primary factor in creating the disturbance

3 The parathyroid glands may be aberrant in position in such a way as to make it absolutely impossible to gain access to them by surgical means (Mandl, *Deutsche Ztschr f Chir* 240, 1933)

No improvement was attained and the patient succumbed in February, 1936 Even autopsy did not reveal parathyroid tissue or a parathyroid tumor anywhere in the organism, although all sites where the misplaced organ could have been expected to be present were carefully inspected

The very interesting autoptic records, with a number of photographs taken at every stage, were unfortunately lost at my institute in Vienna through the *Anschluss*

OTHER CASES

Thus this case, which has gained historic importance, ended in failure But fortunately for further research the results obtained with this operative method by other workers persisted over much longer periods, and our confidence in the theory that looking for and removing a parathyroid adenoma is the method of choice in Recklinghausen's disease need not be shaken

I particularly refer to the cases of Chifauliau (Leri, Lievre and Weil), the first

The fact that although in the above mentioned disorders a "slightly" raised level of the blood calcium may now and then be encountered, the calcium metabolism is in the majority of cases absolutely normal also does not agree with this therapeutic theory.

Cases which are not accompanied by hypercalcemia cannot, therefore, be attributed to a disturbed parathyroid function. Thus a certain amount of criticism is justified in judging the results of this operative manipulation.

DISEASES OF THE JOINTS

W. A. Oppel and Samarin, as is well known, first suggested parathyroidectomy combined with unilateral thyroidectomy in the treatment of ankylotic polyarthritis. The idea was that in all cases of tetany and spasmophilia brought about by hypofunction of the parathyroid glands, hypocalcemia, as well as a heightened electric excitability, was also present. In the opinion of the above authors, most of the cases of ankylotic articular diseases present hypercalcemia and lowered electric excitability (ankylotic polyarthritis, spondylarthritis), and so were classified under the heading of hyperparathyroidism.

Quite recently, Schkurov (*J. Bone and Joint Surg.*, 1935) among others, reported on this subject. Out of 58 cases, the calcium level of the blood was lowered in "a good number" subsequent to operation. Fifty per cent showed subjective as well as objective improvement. Schkurov also operated upon such patients in whom, previous to operation, no hypercalcemia had been recorded, and even recommended parathyroidectomy as a prophylactic against threatening ankylosis.

The results reported by other authors are for the most part poor, for the rest confusing: Welti and Garnier operated upon 14 cases of "chronic rheumatism," and observed that those with no deforming arthritis responded satisfactorily to the treatment. L. Franco gives 69 cases (collective statistics): 34 of these patients showed temporary improvement, 21 did not respond to the treatment, 12 were cured, and 2 died. Simon found 151 cases in the literature, in 57 per cent of which the procedure was said to have been successful.

As a matter of fact, it should be borne in mind that an enormous difference exists, clinically as well as pathogenetically, between the various types of chronic rheumatism and ankylotic articular processes, and this makes the decision as to whether or not to choose the operative procedure all the more difficult.

No doubt, chronic articular diseases should be approached by parathyroidectomy only if definite hypercalcemia is present. In the future, I have decided to operate upon these cases exclusively under this condition, in view of the rather poor results I, too, have had up to now.

SCLERODERMA

Another disorder in which parathyroidectomy has repeatedly been attempted is scleroderma. It is, however, only in the more or less generalized type that the operative procedure should be decided upon.

According to Thibierge-Weissenbach, here the theoretical grounds for undertaking the operation are:

Where hyperosteolysis is present, the excessive amounts of calcium are not always released into the blood, or eliminated from the organism in the urine, but may also be deposited in the skin, where the calcium is either distributed over large areas or is found in plaques and can be identified by chemical tests. It is worthy of record that even in this type of hypothetical hyperparathyroidism again only hypercalcemia, no parathyroid tumor nor diffuse enlargement of all parathyroid glands, has been met with.

hypercalcemia has never been found (Mandl, Roux Berger, Lievre and others) The same holds true with Schueller's disease (Snapper) If, however, the multiple types of these diseases are present, diagnosis presents tremendous difficulty A decision may be reached in such cases by testing the blood for the absence of hypercalcemia, a diagnostic bone excision may also be undertaken

There are, however, a number of types of generalized osseous affections which present much difficulty in diagnosis In some of them—the senile osteoporosis, osteomalacia due to nutritional deficiency, osteopsathyrosis, multiple enchondromas—the calcium values in the blood always are normal Hypercalcemia may, however, also be found in connection with grave destructive processes, e g , in diffuse skeletal carcinosis as well as in myelomatosis (Barr, Bulger and others)

Thus hypophosphatemia, which always accompanies hyperparathyroidism may sometimes be more characteristic of this disorder than hypercalcemia, although this is usually referred to as the leading symptom of hyperparathyroidism, since in connection with skeletal carcinosis as well as with myelomatosis no hypophosphatemia is encountered

Diagnostic difficulty may, however, be encountered and may interfere with the pathogenetic clarification, if attempts are made to distinguish hyperparathyroidism from Paget's diseases of bones Always championing the dualistic viewpoint, I have repeatedly drawn attention to the fact that Recklinghausen's disease and Paget's disease are absolutely different conditions This is clearly shown by the clinical course they run and the difference in their roentgenograms In the entire literature there is no report of Paget's disease in which there has been definite proof of the presence of hypercalcemia nor has it ever been possible to discover a parathyroid adenoma in this disease

I may remind the reader of Schmorl's findings, obtained a long time ago Among 138 autopsies of victims of Paget's disease, he found not one parathyroid tumor Also in point are the unsuccessful attempts of Snapper, Ballin, Mandl and others to discover a parathyroid tumor in connection with Paget's disease

However, a number of authors hold the view that there is nevertheless a certain relationship between the two disorders (Donati) Gutmann and Barclay-Parson recently reported 3 cases of Paget's disease in which hyperparathyroidism had been present However, even these authors stress the fact that this occurrence is extremely rare

My detailed discussion of this subject is found in *Bruns' Beitrage* (160), and I have had the opportunity of talking the subject over with Kienboeck Should we find sclerotic patches in the bone tissue of an otherwise decalcified skeletal system of a patient with Recklinghausen's disease, this should be considered a symptom of reparation there If, however, this sort of change is found after successful operation, it is indicative of beginning cure, since it is now generally accepted that after successful operation, normalization of the osseous structure may be expected

It is, moreover, worthy of record that, when trying to distinguish Recklinghausen's from Paget's disease, the diagnostic excision of bone tissue will not help in any way since, as is well known, the same microscopical findings may be present in both diseases

Diagnosis may become even more difficult where the other generalized osseous diseases are concerned Again and again, cases of myelomatosis, lymphosarcoma, xanthomatosis or carcinosis of the bones have been reported in which attempts were made to discover a parathyroid tumor, an adenoma of the thyroid eventually being mistaken for one and removed without microscopical verification The negative result in such although there was certainly no hyperparathyroidism. One of the patients had already developed uremia; his kidneys had been operated upon several times and new stones had formed again and again in both kidneys. In this patient the operation was a success. As long as he could keep me informed (about one year after the operation) he had no subjective troubles. Another patient had only hematomas of the renal area to begin with, as the result of being hit with a stick and kicked in a concentration camp. As time went on, these hematomas became ossified, and in the end the renal bed was completely ossified on both sides and uremic symptoms appeared. In this case, the operation induced subjective improvement, although roentgenograms in no way indicated reduced ossification (cf. Brindle-Hermann).

In view of the above, it seems worth while in very desperate cases to attempt to reduce the parathyroid tissue by operation.

In Recklinghausen's disease, also, absorption or dissolution of calculi which have once been formed cannot be expected, even if operation has on the whole been successful. New formation of stones, however, will probably not take place, or will at least be greatly reduced after hypercalcuria has once been checked in this way.

BUERGER'S DISEASE

Bastai and Dogliotti, Giordano, Paolucci, Camolli and others endeavored to influence various angiospastic conditions, including Buerger's disease, by parathyroidectomy (cf. Donati, International Surgical Congress, 1935). As far as angiospastic conditions are concerned, it may be that a sympathetic effect must be considered here. On the basis of all we know about Buerger's disease or, better, what we do not know about it, we should refrain from taking action before more detailed reports are available. Personally I have had the opportunity of observing satisfactory results with total thyroidectomy in some cases of Buerger's disease, but it will not be possible to judge the results until some time has elapsed. In view of the close interaction which exists between all the factors of the endocrine system, and particularly in view of the close anatomical relationship between the thyroid and the parathyroid gland, the above results should perhaps be explained on these lines.

SUMMARY

Fifteen years after the first parathyroidectomy was performed, a survey of the field of indication with reference to this operation is given. Only clinical viewpoints are, however, referred to.

The course of the first case of successful parathyroidectomy in a patient suffering from Recklinghausen's disease is reported.

If parathyroidectomy is to be successful, the diagnosis of hyperparathyroidism must be clear. A number of osseous changes which should be taken into consideration in differential diagnosis are enumerated. Sometimes there is not much difficulty in distinguishing Paget's disease from Recklinghausen's disease, but other osseous disturbances present much more difficulty. Often diagnostic bone excision is the only means of establishing diagnosis so that parathyroidectomy may be justified.

Only in the case of a correct diagnosis will a parathyroid tumor actually be found, and its removal will cure the disease. Up to the present, roughly 300 cases have been operated upon. The mortality rate is 9 per cent.

Very frequently the tumor is not easily found, particularly since in 25 per cent of the cases the organ is encountered at an abnormal site.

Proof is given of the fact that my view concerning the primary importance of the tumor with reference to the entire complex of hyperparathyroidism, discussed for the first time in 1926, holds true even today.

he succeeded in finding and removing a tumor of the mediastinum. Churchill and Coppe were also forced, in five cases, to operate a second time before they were able to remove the tumor. In one of these cases thyroid tissue had already been removed on both the right and left sides, and not until the seventh operation was it possible to detect and remove an adenoma of the parathyroid situated in the anterior mediastinum, and the sternum had to be separated to get access to it.

It need not be emphasized that in cases in which definite hyperparathyroidism is present and where a parathyroid tumor may be definitely expected, the removal of normal parathyroid tissue is fraught with danger, in view of the postoperative tetany which may occur—a complication which may also arise in any ordinary operation on an adenoma of the parathyroid, even if no unsuccessful manipulation had been made previously (Albert, Lievre, Snapper).

Tumors to which no access is possible are usually situated in the depth of the anterior inferior mediastinum or retroperitoneally. They are sometimes found on autopsy.

As to the relationship between parathyroid tumors and hyperparathyroidism, it is now generally accepted (as I suggested in 1925) that the parathyroid tumor is actually the primary factor in bringing about this condition. This assumption has meanwhile been verified by a great number of operations and experiments. In my opinion, the parathyroid adenoma produces—similarly to the hypophyseal tumor which produces acromegaly—that sort of toxic condition of the organism which to begin with disturbs the calcium metabolism, so that it eventually reaches pathological lines and presents the characteristic chemical findings.

Although this fact is generally accepted today, observations and facts which do not fit into the picture should not be ignored:

1. In some rare cases, so-called silent tumors are found, unaccompanied by apparent skeletal changes, and it is sometimes only during autopsy that they are discovered (Bergstrand). Even clinically several such cases have been reported (Keynes, *Brit. J. Surg.* 1939).

2. Moreover, the significance of those rare cases which present hypercalcemia as a result of skeletal carcinosis or myelomatosis, but which afterward also develop a parathyroid tumor, should not be overlooked. As far as I am able to judge from the literature, no more than five cases of this kind have been reported up to the present, although this special field has been exhaustively investigated (Barr and Bulger, Klemperer, Bernard and co-workers, Welti and co-workers, Ben Asher, *J. Lab. & Clin. Med.* 1939).

No satisfactory explanation of this singular occurrence is yet possible. It may be that in exceptional cases decalcification of the skeleton produces enlargement of the parathyroid gland. If so, why is this so rarely the case? Is there a possibility that the same adenoma which, in the vast majority of cases, must be held responsible for the decalcification process of Recklinghausen's disease, should in some exceptional cases represent the response of the organism on compensatory lines?

The rare findings referred to above lead me to outline my views on this subject, expressed as early as 1926, but now based also on the findings of the latest reports. I adhere to the theory of the primary activity *of the parathyroid tumor in producing hypercalcemia* as well as hyperparathyroidism and consequently *Recklinghausen's* disease. This belief is based on the following reasons:

1. Removal of the tumor, in [illegible] cases where it is actually found during operation, has an effect on Recklinghausen's disease similar to the effect of [illegible] *hypophyseal* tumor on [illegible]

Der Verlauf des erst operierten Falles wird aüsfuhrlich des childert. Um einen Erfolg der Parathyreoidectomie zu si chern, muss vor allem die. Diagnose: Hyperparathyreoidismus klar sein. Die verschiedenen generali sierten Knochenerkrankungen machen oft differential diagnostiche Schwierig kieten. Oft muss die Probe excision Klarheit schaffen.

Neben der Radiographie sind Hypercalcaemie und Hypophosphataemie die wichtigsten Kriterien zu der Operation.

Bisher wurden bei der Recklinghausenschen Knochenkrankheit, die den klarsten Typus des Hyperparathyreoidismus darstellt fast 300. Operationen ausgeführt. Die Mortalität betragt ca 9%.

Oft ist die Suche nach dem ursächlichen Tumor schwierig, da bei 25% der operierten Fälle eine anormale Lage des Tumors festgestelt wurde.

Es wird erwiesen, doss die vom Autor schon 1925 vorgebrachte Ansicht über die ursächlic e Bedeutung des Tumors noch zu Recht besteht.

Die seltenen Fälle von "Stummen" Tumoren oder aber, dass manche Autoren an mehr als an einem Parathyroid Veränderungen fanden (Churchill & Coppe) ändern vorlaufig nichts an dieser Ansicht.

Es werden dann die anderen Indikationen zur Parathyreoidectomienoch angeführt. Gelenkkrankheiten, Sklerodermie, Bürgersche Krankheit, Steinlieden. Nach Ansicht des Autors besteht nur bei eindeutig chemisch festgestelltem Hyperparathyreoidismus die Indikation zu der Operation, die sich aber bein den angefuhrten Zust ändern relativ selten ergibt.

Es wird eine strengere Indikation vorgeschlagen, um die Op. Ergebnisse auf einer gewissen Höhe zu hal ten.

SUMARIO

El Desarrollo de la Paratiroidectomía Durante los Quience Ultimos Años

Quince años despues de que la primera paratiroidectomia fue hecha, una investigación del campo de indicaciones con referencia á esta operación es dada. Solamente puntos de vista clínicos son mencionados. El curso del primer caso con éxito en la paratiroidectomía en un enfermo sufriendo la enfermedad de Recklinghausen es reportado.

Para obtener éxito en la paratiroidectomía, el diagnóstico de hiperparatiroidismo debe de ser claro. Un número de cambios oseos los cuales deben de tomarse en consideración en el diagnóstico diferencial son enumerados. Algunas veces no hay mucha dificultad en distiguir la enfermedad de Paget de la de Recklinghausen; pero otros trastornos oseos pueden y se presentan mas dificultades. Muy á menudo la excisión de hueso es el unico medio para hacer el diagnóstico, así que la paratiroidectomía esté justificada.

Solamente en el caso de un diagnóstico correcto un tumos paratiroideo sera actualmente encontrado, y su extirpación curara la enfermedad. Hasta el presente, un estimado como de unos 300 casos han sido operados. La mortalidad es de nueve por ciento.

Muy frecuentemente el tumor no se encuentra facilmente, particularmente debido á que en el 25% de los casos el organo se encuentra en un lugar abnormal.

Prueba es dada de la verdad de que mi punto de vista con relación á la importancia primaria de el tumor con referencia al complejo entero de la hiperparatiroidismo, discutida por primera vez en 1926, se sostiene absolutamente verdadero aun al presente.

No es de significancia que en algunos casos muy raros llamados tumores callados de las paratiroides han sido encontrados, ó que en casos extremadamente raros aumento de tamaño de varias ó aun de todas las paratiroides han sido reportados (Churchill y Coppe).

Otras indicaciones ademas del estado mórbido de Recklinghausen pora paratiroidectomia son discutidas. Despues de un periodo transitorio de gran entusiasmo, se ha vuelto

gland responsible for these rare cases (Hertz and Kranes).

OTHER INDICATIONS FOR PARATHYROIDECTOMY

Although, according to the above, the necessity of the operative procedure in hyperparathyroidism and, therefore, Recklinghausen's disease, seems definitely established, and in need of no further discussion, this is not the case with other osseous disorders. Here it must be decided from case to case whether or not to undertake operation. As mentioned above, attempts to influence Paget's disease by parathyroidectomy are doomed to failure. In the therapy of other osseous diseases, the nature of which is not so clear, parathyroidectomy has sometimes been considered and successfully performed.

I am quoting only one of a great number of publications on this subject, that of Leriche and Jung (*Presse méd.* 1938). The authors report upon a patient, aged 15, of stunted growth and with generalized decalcification of the bones, in whom the removal of a parathyroid tumor 12 cm. long, which protruded into the thymus, yielded good results. This patient presented, in addition, interfascicular and perimuscular sclerotic patches. Bretscher also observed an enlarged parathyroid and hyperplasia of the thymus in one case. Wertheimer and Guillemin (*Presse méd.* 1939) obtained good results in a patient, aged 37, who suffered from *ostéoporose douloureuse post traumatique* with hypercalcemia by removing a normal parathyroid. Osteitis generalisata (described by Albright) with its singular pigmentation of the skin (as also observed by Mondor) likewise seems to respond to parathyroidectomy. In other osseous disorders, the nature of which has not been fully clarified as yet, influencing the condition by extirpation of normal parathyroid tissue has also been tried.

Disorders which do not involve the osseous system and in which the elimination of normal parathyroid tissue for therapeutic purposes has also been recommended, are various types of polyarthritis, spondylarthritis (Bechterew), scleroderma, myositis progressiva generalisata, spontaneous keloid formation of the skin, Buerger's disease, Parkinson's disease, etc. It has also been recommended to influence recurring renal calculi by removing parathyroid tissue.

I am, at present, much more doubtful as to the therapeutic prospects of these cases when treated by parathyroidectomy than I used to be, since, in my experience, the results of this operation are not so good as they first seemed to be (cf. *Bruns' Beiträge* 162). My former viewpoint needs, therefore, a certain amount of revision (*Wien. klin. Wchnschr.* 1938). Above all, it should be emphasized that in none of these cases has enlargement or a tumor of the parathyroid gland ever been encountered. If, therefore, one assumes these disorders to be connected with hyperparathyroidism, one must necessarily remove normal parathyroid tissue from the organism. It is a matter of course that, the operative procedure having been decided upon, the microscopical identification of the parathyroid tissue must be established during operation.

The question, however, as to whether or not this therapeutic procedure is logical needs further discussion. To begin with, it should be clear that although by injecting parathormone a number of investigators were actually successful in producing a condition of the bones and kidneys the symptoms of which were similar to those prevailing in Recklinghausen's disease (Jaffe, Bodansky, Blair, Aub and Albright, Mandl and Uebelhoer, and others), it has never been possible, experimentally, to produce ankylotic diseases of the joints in this way. On the other hand, Selye and Shelling stimulated the deposition of calcium in the skin with this procedure.

It is further worthy of note that the results of parathyroidectomy in scleroderma are even more impressive (as far as the literature gives information on this point) if sympathectomy is combined with this operation, as used, for instance, by Leriche in most of his cases. The results of this procedure are, however, somewhat confusing, since it is not clear how far the therapeutic success must be attributed to parathyroidectomy and to what extent the sympathetic procedure must be held responsible. Moreover, the combined action of the parathyroid and the sympathetic nerve should also be taken into consideration, were there not a number of important clinical observations which do not agree with this assumption (Leriche and Jung were able to cure a case of severe tetany by cervicothoracic sympathectomy and another case was also cured in this manner). These authors assume that a *réactivation endocrinien* of the parathyroid follows sympathectomy. If this is true, parathyroidectomy and sympathectomy should counteract one another, so that it would be highly illogical to combine both procedures.

The above arguments are of great importance with reference to parathyroidectomy in scleroderma; and those operations in which parathyroidectomy and sympathectomy were carried out simultaneously (Chifauliau and Braine, Basch and Leibovici) now appear in another light.

Those cases of scleroderma in which only the parathyroid procedure was chosen were doubtful as to their results (Grégoire, Alessandri, Houssein and others).

According to my own experience, based upon two severe cases recently treated, *it is the sympathetic procedure which is decisive*, particularly since symptoms of hyperparathyroidism are very rarely encountered in scleroderma.

It is a well-known fact that one of the classical symptoms of morbus Recklinghausen is the formation of stones in the urinary tract, since there is no doubt that the vast majority of patients eventually succumb to both cachexia and uremia (Hunter-Turnbull, Churchill and others). The question now arises whether a disorder so widespread as urinary calculi may perhaps be so closely related to the parathyroid activity that conclusions concerning therapy may be drawn from this.

Barney and Mintz found that out of 100 patients with stones 18 suffered from hyperparathyroidism. But none of them presented any skeletal symptoms whatsoever. As a matter of fact, the hypercalcemia of these patients did not exceed 12-14 milligrams per cent. On the other hand, as far as I am informed by the literature, over 90 per cent of the cases with hyperparathyroidism develop stones. So no other way remains but to assume that the formation of stones is only a symptom of high hypercalcemia and has nothing to do with those cases which, so to speak, develop spontaneously and are not accompanied by decalcification of the bones and where no other symptoms of hyperparathyroidism are encountered.

Recently three papers have appeared (Griffin, Osterberg and Braasch, and Higgins, Fouweweather and Pyrah) which also show that primary latent hyperparathyroidism is most probably not in itself an etiological factor active in producing renal calculi.

In connection with stones in the kidney and ureter I have not found hypercalcuria or hypercalcemia in a considerable number of patients. It is, however, obvious that increased excretion of calcium induces an alteration in the renal parenchyma, and prophylactic measures on these lines might, therefore, be beneficial.

Parathyroidectomy in the treatment of stone diseases, therefore, lacks sufficient evidence of efficacy to be actually applied at present.

In two extremely serious cases I nevertheless operated upon the parathyroid gland,

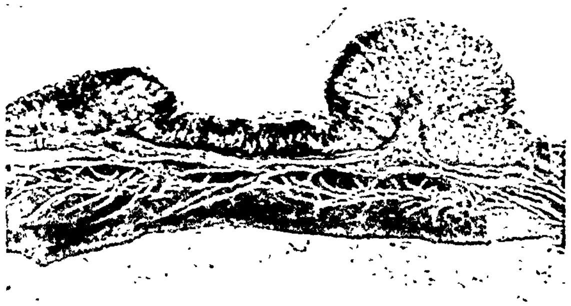

FIGURE 3

The photomicrograph of the polyp illustrates the surface elevation of hyperplastic epithelium with the central core of connective tissue (8 X).

troscopic and roentgen-ray examinations and disclosed polyps. Of the 11 cases in which microscopic sections were studied we found 4 polyps, 2 myomata, and 1 each of the following: papillomata, adenomata, fibroma, polyposis and hyperplastic linitis plastica. The linitis plastica involved particularly the pyloric antrum, producing a considerable tumor and obstructing the stomach, so that a gastro-enterostomy was done.

DIAGNOSIS

There are no definite distinguishing clin cal symptoms in benign tumors of the ston ach. The gastric analysis or other labora tory findings are not characteristic. Bal four[12] found severe anemia associated wit one of his cases of benign tumor of th stomach. The two most accurate means c pre-operative diagnosis are the roentgen ray and gastroscopic examinations. Thre cases diagnosed by these means were con firmed by operation and histologic section (see Figures 4 and 5).

The three most common symptom among our patients were vomiting, belching and loss of weight. The other symptom in order of frequency were: nausea, weakness, epigastric pain, epigastric distress, pai in the right upper abdomen, pain in righ upper abdominal quadrant with radiatio to right shoulder, pain in right lower abdominal quadrant, anorexia, vague abdominal pain, backache, constipation, dysphagia for liquids and solids, lodgement o

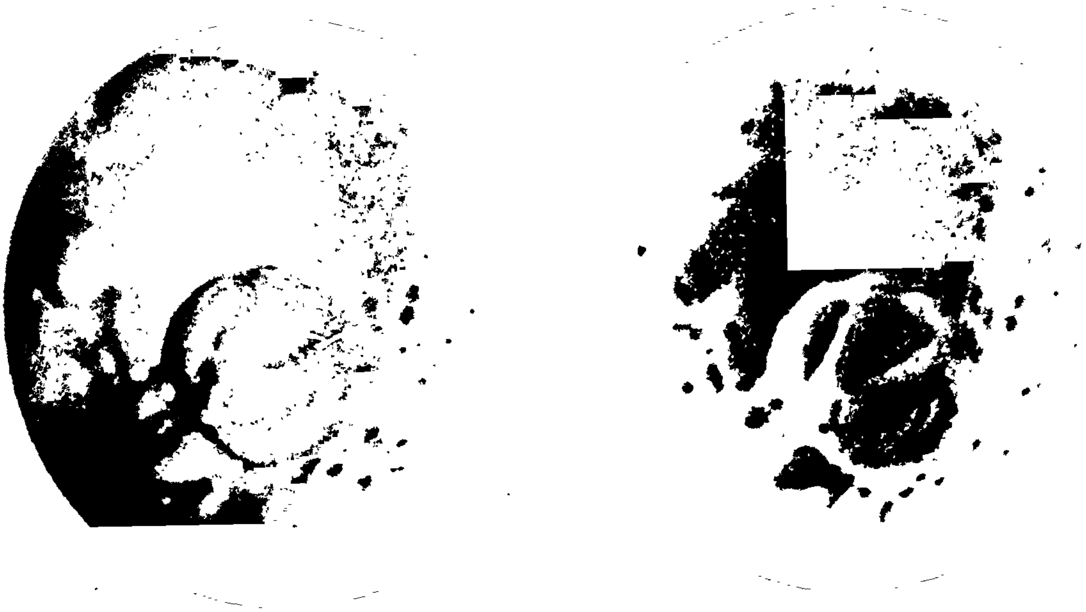

FIGURE 4

Illustrates a gastric polyp and ulcer, situated in the pyloric antrum, as observed by the gastroscope.

It is of no significance that in some very rare cases so-called silent tumors of the parathyroid have been encountered

Indications other than morbus Recklinghausen for parathyroidectomy are discussed After a transitory period of great enthusiasm, it has become clear that the results obtained with this operative method in various articular diseases, scleroderma and stone affections, etc , are neither very clear nor very convincing. Only if hypercalcemia can be diagnosed in connection with diseases of this kind, should reduction of the parathyroid tissue (which is then always found to be normal) be considered

Apart from the author's own case histories, the important findings of the literature are given On the whole, the advice is offered to keep strictly to the indication, so that the results of parathyroidectomy may be kept favorable

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RÉSUMÉ

Le developement de la parathyroidectomie durant les dernierès quinze années

Quinze ans apres la première parathyroidectomie l'auteur analyse les indications pour cette operation Il n'envisage que les points de vue clinique La première parathyroidectomie faite avec succès chez un malade souffrant de la maladie de Recklinghausen est rapportee en détail

Pour que la parathyroidectomie soit un succès, le diagnostic d'hyperparathyroidisme doit être évident Un nombre de lésions osseuses qui demandent à être considerees dans le diagnostic différentiel sont enumérées La maladie de Paget offre parfois quelque difficultés Parfois un diagnostic prècis n'est obtenue qu'après excision et examen d'un fragment osseux

Si le diagnostic est correct, l'enlevement de la tumeur parathyroidale sera suivi de guérison Jusqu'à nos jours à peu près 300 opérations ont eté rapportées La mortalite est de 9 pour cent Souvent, la tumeur est difficile a trouver, parce que dans vingtcinq pour cent des cas, la glande a un siege anormal

L'importance primaire des ces tumeurs et leur rapport avec l'hyperparathyroidisme furent discutes pour la première fois en 1926 Cette importance est aujourd'hui generalement admise Dans quelques cas on a trouvé ces tumeurs ne causant aucun symptôme et dans quelques cas, extrêmement rares, on a trouve une hypertrophie de plusieurs ou de toutes les glandes parathyroides On a fait la parathyroidectomie pour certaines maladies des articulations, pour la sclerodermie pour la diathése calculeuse, etc Les résultats obtenus sont douteux et peu convainquants

L'auteur analyse son cas et nous donne un bon resume de la litterature du sujet Il recommande qu'on etudie bien les indications de l'operation Ainsi, on obtiendra des resultats favorables

ZUSAMMENFASSUNG

Die Entwickelung der Parathyreoidectomie in den letzen 15 Jahren

Nach dem die erste Parathyreoidectomie 15 Jahren zuruckliegt, wird eine Uebersicht uber das Indikationsgebiet versucht curate means of pre-operative diagnosis. Routine autopsy examinations reveal benign gastric neoplasms that caused no clinical symptoms during life. Simple excision of the benign tumor without gastric resection was sufficient for relief in our cases. More extensive operative procedures were performed only when other lesions were present.

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RÉSUMÉ

Les tumeurs bénignes de l'estomac

Ces tumeurs, ne donnant aucun symptôme défini, nous permettant de faire un diagnostic précis. L'analyse du contenu gastrique n'offre rien de caractéristique. Pour le diagnostic pré-opératoire la radiographie et la gastroscópie sont utiles. Souvent à l'autopsie on trouve un neoplasme bénin gastrique qui durant la vie du sujet n'a causé aucun symptôme clinique. Dans les cas rapportés par les deux auteurs l'excision de la tumeur suffit pour soulager le malade. Dans les cas associés avec d'autres lésions on pratiqua des interventions plus étendues.

ZUSAMMENFASSUNG

Gutartige Geschwülste des Magens

Es gibt keine bestimmten klinischen Merkmale, welche die Diagnose einer gutartigen Geschwulst des Magens erlauben. Die Magensaftuntersuchung ist nicht kennzeichnend. Röntgenologische und gastroskopische Untersuchung sind die zwei zuverlässigsten Methoden der Krankheitsbestimmung vor der Operation. Allgemeine Leichenschau ergibt gutartige Magengeschwülste, die während des Lebens keine Anzeichen hervorriefen. Einfache Exzision der gutartigen Geschwulst ohne Resektion war genügend in Verfasser's Fällen. Ausgedehntere chircurgische Verfahren wurden nur dann agewendet, wenn anderweitige Krankheiten vorlagen.

SUMARIO

Tumores benignos del estomago

No existen sintomas clinicos por los cuales puede hacer se un diagnostico de Tumor Benigno del Estomago. Analises-Gastrico presenta nada tipico. Los Radios X y Gastrocopia son los metodos mas exactos para determinar un diagnostico preoperativo.

Autopsias demuestran Tumores Benignos del Estomago que no causaron simptomas clinicos envida.

Excision del Tumor Gastrico sin resecion subtotal del Estomago es generalmente suficiente para mejora y solo se hicieron recessiones Gastricas en presencia de otras lesiones.

RIASSUNTO

Tumori benigni dello stomaco

Non vi sono definiti sintomi pei quali una diagnosi di tumore benigno dello stomaco possa essere fatta. L'analisi del succo gastrico non è caratteristica. Raggi X e gastrocopia sono i due mezzi più accurati per una diagnosi preoperativa. All'autopsia si rivelano neoplasmi benigni dello stomaco che non avevano dato sintomi clinici durante la vita dell'ammalato. La semplice escissione del tumore benigno senza resezione fu sufficiente nei casi discussi. Si ricorse a procedimenti operativi più vasti quando altre lesioni coesistevano.

claro que el resultado obtenido con este método operatívo en varias enfermedades articulares, esclerodermia y afecciones de piedra, etc., no son ni muy claras ni muy convincentes. Solamente si hipercalcemia puede ser diagnosticada en conección con enfermedad de esta clase, la reducción del tejido paratiroideo puede ser aconsejada (el cual se encuentra siempre normal).

RIASSUNTO

Lo Sviluppo della Paratiroidectomia Durante gli Ultimi 15 anni

Quindici anni dopo la prima paratiroidectomia, un esame è dato del campo di indicazione in relazione a quest'operazione. Sólo punti di vista clinici, tuttavia, si riportano. Si riporta il corso del primo caso di una paratiroidectomia ben riuscita, in un paziente soffrendo dalla malattia di Recklinghausen.

Se si deve fare con successo una paratiroidectomia, la diagnosi dell'ipertiroidismo dev'essere chiara. Una quantità di cambiamenti ossei che si devono ritenere importanti nella diagnosi differenziale sono enumerati. Alcune volte, non c'è molta difficoltà nel distinguere la malattia di Paget dalla malattia di Recklinghausen, ma altri disturbi ossei presentano più difficoltà. Spesso la recisione diagnostica dell'osso è il solo mezzo di stabilire la diagnosi di maniera che si possa giustificare la paratiroidectomia.

Si troverà in fatto, un tumore paratiroide solamente nel caso di una diagnosi corretta, e il suo spostamento curerà la malattia. Fino al presente, su per giù 300 casi sono stati operati. La rata di mortalità' è 9 per cento.

Molte volte non si trova facilmente il tumore, particolarmente poichè in 25 per cento dei casi l'organo, si trova in un posto anormale.

Si da prova del fatto che il mio punto di vista riguardo all'importanza primaria del tumore in relazione al entero complesso d'iperparatiroidismo, discusso per la prima volta nel 1926, si mantiene assolutamente vera anche oggi. Non E di nessun importanza che in alcuni casi molto rari si sono *trovati cosidetti tumori silenziosi* o che in casi estremamente rari si è incontrato ingrandimento di diversi o tutti i paratiroidi (Churchill and Coppe).

Indicazioni altre che il morbo Recklinghausen per la paratiroidectomia sono discusse. Dopo un periodo transitorio di gran entusiasmo, è diventato chiaro che i risultati ottenuti con questo metodo operativo in diverse malattie articolari, sclerodermia, e affezioni di pietra, etc., non sono nè molto chiari nè convincenti. Si deve considerare la riduzione del tessuto paratiroide (che allora si trova sempre normale), soltanto se si può fare diagnosi dell' ipercalcemia, in relazione con malattie di questo genere.

A parte delle storie di casi dell'autore proprio, si danno importanti scoperte della letteratura.

In complesso, il consiglio è offerto di mantenersi strettamente all'indicazione, di maniera che i risultati della paratiroidectomia si possano tenere favorevoli.

GENERALIZED SPINAL ANALGESIA

DARIO FERNANDEZ FIERRO, M.D., F.A.C.S., F.I.C.S.
Member of the Mexican Academy of Surgery
MEXICO CITY, MEXICO

WHEN I was studying medicine in 1908, spinal anesthesia was the subject of lively discussion. This procedure had been introduced a few years before, and thanks to the work of Corning (U.S.A.), Bier (Germany) and Tuffier (France) it was becoming widely recognized. In the city of Oaxaca on July 2, 1900, Drs. Ramon Pardo, Luis Flores Guerra, Herminio Acevedo and Manuel Pereyra Mejía were among the first surgeons in Mexico to accept and practice spinal anesthesia. In Mexico City the first thesis on the subject was written by Everardo Landa and Adalid y Castillo. Aureliano Urrutia and Julían Villarreal were among the most ardent advocates of the method. Since that time spinal anesthesia has been so widely practiced in Mexico that this country can claim a *lieu d'honneur* in its history and advancement.

When spinal anesthesia was first practiced, it was resorted to only in operations on the abdomen and lower extremities; instances in which it was used for operations on the thorax and upper limbs were rare, indeed. The possibility of employing it in surgery of the head, neck and thorax was considered by many, among these being Chaput (1901), le Filliatre (1901-1904), Jonnescu (1908) and others. In Mexico those who attempted to use it in various regions were Villarreal, López, Urrutia, Adalid y Castillo, Padilla and Moreno.

Since 1908 I have been studying generalized spinal analgesia, and the results of my investigations have appeared in various theses published under my preceptorship, such as: "Supraspinal Analgesia," Vincente Meza (Mexico City) 1917; "General Analgesia by Injection of Cocaine in the Lumbar Spine," Enrique Rodarte (Mexcio City) 1918; "Experimental Questions on Spinal Anesthesia," Fernando López Clares (Mexico City) 1929; and "Generalized Spinal Anesthesia, Koster Method," Julio Z. Garza Cantú (Mexico City) 1935. All these are on the subject of general analgesia. I shall now present the results of 30 years of study. I shall sketch briefly the history of spinal analgesia, point out priority and describe technical details.

REVIEW OF LITERATURE

Chaput[1] stated, in 1901, "Most authors employing cocaine anesthesia in the lumbar region admit that it is useful for operations on the lower limbs, pelvis and lower part of the abdomen. . . . I agree with Tuffier in regard to operations on the abdomen and thorax. . . . Moreover, I believe that Tuffier's method can be easily applied to operations on the upper limbs and perhaps to head operations." In this article he described three major operations which he had performed on the upper extremities by means of spinal anesthesia, with cocaine. The first operation was a resection of the elbow; the second, resection of the olecranon; the third, amputation of the hand. In the first two, anesthesia was obtained in 9 to 11 minutes; in the third, anesthesia was incomplete, reaching only the third rib and the patient complained of pain; however, his complaints were mild and there was only a slight degree of tenseness. The writer stated that the cocaine had facilitated the operation and that without it the amputation would have been impossible, especially in a nervous and timid patient. He also re-

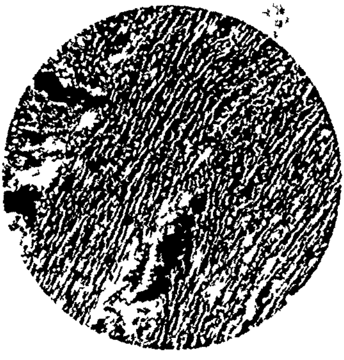

FIGURE 1

The photomicrograph of the myoma illustrates the appearance of the fibers in the myoma showing the rod shaped nuclei with blunt ends (250 X)

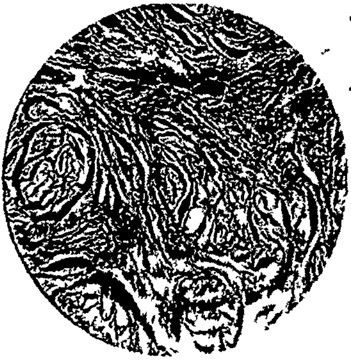

FIGURE 2

The photomicrograph of the fibroma illustrates the hyalinized fibers of the fibroma still containing some of their spindle shaped nuclei (100 X)

PATHOLOGY

Our observations are in accord with the findings of others, that myomata and polypi are the two most common benign tumors of the stomach In Eliason and Wright's[6] cases, myomata predominated, while in Ronzini's[7] series and among our patients polypi and polyposis were more numerous than myomata

Frequency of Malignancy These tumors must be carefully examined to exclude malignant degeneration, which was found in 1 of our cases of polyposis Balfour[8] observed malignant degeneration in 2 of his 58 cases Out of 23 cases reported by Miller, Eliason and Wright[10] 8 showed carcinomatous degeneration The concensus of opinion would indicate that from 12 to 60 per cent of benign polypi eventually become cancerous, as stated by Rigler and Erickson[4] McRoberts[11] found microscopic evidence of malignant degeneration in 4 out of 5 cases intensively studied

Influence of Location on Symptomatology These tumors may be located at or near the cardiac opening of the stomach and interfere with swallowing, producing dysphagia This was true in one of our patients Or they may be located in the pyloric antrum and, if pedunculated, interfere with the emptying of the stomach, causing gastric retention They may also be situated in the body of the stomach and not give rise to clinical symptoms, but be detected only during routine autopsy investigations In our series 60 per cent were in the pyloric antrum 20 per cent in the body and 20 per cent in the cardia Balfour[8] found 69 per cent in the pylorus 26 per cent in the body and 5 per cent in the cardiac portion of the stomach

Among our 13 cases of benign tumor of the stomach, three types were found myomata, fibromata and polyps (Figures 1-3)

The diagnosis in 11 of the 13 cases was confirmed by histologic sections, taken either by operative means or a
other 2 cases the diagnosis

accidents; that one need not be alarmed by pallor, perspiration or chilling on the part of the patient; and that these reactions are but the natural sequelae of high anesthesia. He advised no medication to increase systolic tension. The only contrindication to spinal anesthesia, in his opinion, is local infection at the point of injection. He had four failures, and in his opinion, in none of these was spinal anesthesia responsible for the failure.

Labat, in 1930, presented a slightly different technic, whereby morphine and scopolamine are injected before operation. For operations above the diaphragm the puncture is made between the twelfth dorsal and first lumbar vertebrae, with the patient seated; immediately after the injection he is placed in the Trendelenburg position, which is maintained for three or four hours after the operation is completed. French novocaine or neocaine, 10 to 20 cg. in 8 cc., is used, the injection being reinjected in operations above the diaphragm. Very rarely is general anesthesia produced by this method.

Veher, in 1931, made studies to determine the amount of novocaine needed to produce anesthesia of the head without causing paralysis of the cardiac or respiratory centers. He concluded that those centers are very resistant to the action of novocaine. He pointed out that whereas a dose injected into the spinal canal is tolerated, this same dose is not tolerated if injected into the cisterna magna. He believed the Trendelenburg position to be mandatory to avoid cerebral anemia. Veher used 20 to 24 cg. of novocaine in 3 cc., diluted to 6 cc., and made the injection in the second lumbar space. The Trendelenburg position (at an angle of 10°) was maintained from 4 to 24 hours after the operation.

Maxsson stated that the injection of 160 mg. in the sixth dorsal space produces sensory blockage of the entire body and motor blockage below the sixth dorsal vertebra, producing general anesthesia.

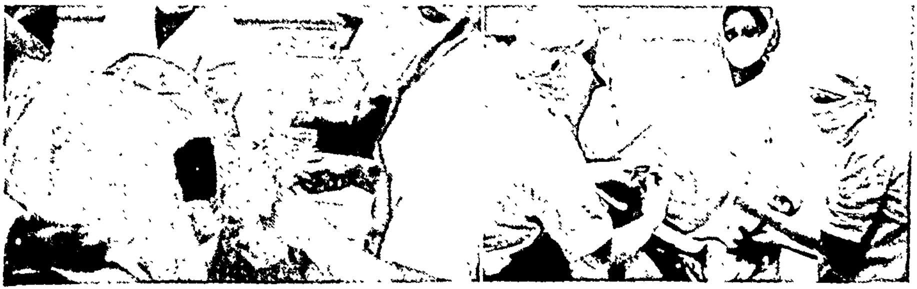

Fig. 1. Left. Spinal puncture with patient in right lateral decubitus. Puncture may be practiced, if preferred, with patient in vertical position; afterwards patient is inclined at an angle of 45°.

Fig. 2. Right. Patient inclined at angle of 45°. Only in this position must anesthetic be injected.

From this review, it will be observed that various procedures have been used for spinal anesthesia. Some of them, based on the level of the puncture (those of Tait and Caglieri, Morton, Jonnesco) have been abandoned because of resulting fatalities. Others, such as le Filliatre's method, decrease the tension of the cerebrospinal fluid, a method which I have used frequently, and even if fatalities do not occur, anesthesia is not always producted. Delmas' method, based on the speed with which the fluid is injected, in my experience did not yield the results claimed for it by its originator. The remaining procedure has as its basis the effect of the Trendelenburg position assumed immediately *after* the injection, the claim being that this position increases the diffusion of the anesthetic and prevents cerebral anemia.

food in esophagus for hours, and tightness around the belt These symptoms may suggest gastric carcinoma, peptic ulcer, carcinoma of the esophagus, cardiaspasm, pyloric obstruction, cholecystitis, cholelithiasis, appendicitis, intestinal obstruction, etc

As was true in several of our patients, there may be one or more other pathological lesions in addition to the benign tumor of the stomach Fortunately, the symptoms usually suggest the necessity for a thorough gastro-intestinal x-ray study The frequency of the occurrence of malignant degeneration in benign tumors has been emphasized by McRoberts[11], Rigler and Erickson[4], and Miller, Ellison and Wright[10]

PROGNOSIS, TREATMENT AND RESULTS

The prognosis depends upon the condition of the patient, the type of tumor and the associated conditions present Of 13 cases of benign gastric neoplasms observed, 8 were operated upon, with 1 death The patient who died was a male, age 72 years, who had pyloric obstruction due to a polyp obstructing the pylorus The operation was gastrotomy with excision of the polyp, as simple an operative procedure as could be undertaken on this poor operative risk However, death occurred one week after operation, due to cardiac failure Seven patients made uneventful recoveries after operation and have remained well Two patients refused treatment and signed their release The operation in 5 of these cases was gastrotomy with excision of tumor Two cases had posterior gastro-enterostomy One of these had hyperplastic linitis plastica obstructing the pylorus, and the other had a pyloric ulcer in addition to a gastric polyp at the pylorus Recurrences were not observed after operation and malignancy has not developed subsequently in any of the cases subjected to operation, according to the records of our follow-up clinic

In 3 cases, benign tumors of the stomach were encountered during routine autopsy examinations One of these revealed adenocarcinoma and polyposis occurring in the same stomach Gastric resection was not performed during any operation for benign tumor of the stomach

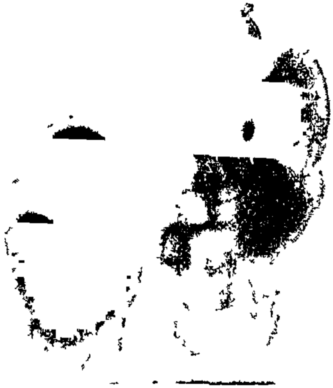

FIGURE 5

Illustrates pyloric obstruction and deformity due to hyperplastic linitis plastica as seen by x ray examination.

It is of particular interest to note that over a twenty-three year period, 1909 to 1932, there were only 5 cases of benign tumor of the stomach observed in Jefferson Hospital and only 2 of these were operated upon, neither of them was diagnosed preoperatively During the past seven years, 1932 to 1939, 6 cases were operated upon by the senior author, the last 3 of which were definitely diagnosed before operation

SUMMARY

There are no definite clinical symptoms by which a diagnosis of benign tumor of the stomach can be made Gastric analysis is not characteristic The x-ray and gastroscopic examinations are the tw

ZUSAMMENFASSUNG

Allgemeine Spinalanästhesie

Die Entwicklung der Spinalanästhesie ist in geschichtlicher Reihenfolge betrachtet. Der Autor beschreibt seine persönliche Technik und hebt die Art und Weise in der sich seine Technik von anderen unterscheidet hervor. Er führt 505 Operationen an Kopf, Nacken und Brustkorb auf die er mit seiner Technik ausgeführt hat.

SUMARIO

Analgesia Espinal Generalizada

Un estudio cronológico de la evolución de anestesia espinal generalizada es hecho. El autor describe su método personal y llama la atención en la manera que su método se diferencia de los demas. El anota 505 operaciones en la cabeza, cuello y torax que él ha hacho de acuerdo á su técnica.

RIASSUNTO

Analgesia spinale generale

Uno studio cronologico dello sviluppo dell'anestesia spinale generale è fatto. L'autore descrive la sua tecnica personale e dimostra le maniere nelle quali il suo metodo è diverso dei metodi degli altri. L'A.compila una lista di 505 operazioni sulla testa, sul collo e sul torace che egli ha fatto secondo questa tecnica.

SUMMER SCHOOL CLINICS

Summer School clinics will be conducted under the direction of the Vancouver Medical association from June 25 to June 28, inclusive. Headquarters will be the Hotel Vancouver, Vancouver, B. C. Speakers will be Drs. **William S. Middleton,** dean and professor of medicine, University of Wisconsin Medical school; **Frederick L. Reichert,** professor of surgery, Stanford University School of Medicine; **P. C. Jeans,** professor of pediatrics, University of Iowa; **William Magner,** department of pathology, University of Toronto; and **A. W. Farmer,** department of surgery, University of Toronto. **Dr. H. H. Caple,** 203 Medical Dental Building, Vancouver, is receiving all inquiries regarding the clinics.

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REMITTANCES FOR DUES: CHECKS SHOULD BE MADE OUT TO DR. BENJAMIN I. GOLDEN, TREASURER, AND MAILED TO MR. RALPH E. OSBORNE, BUSINESS SECRETARY, 2543 PARKWOOD AVE., TOLEDO, OHIO.

RIASSUNTO

Aneurisme cirsoidi primarie gigante

L'aneurisma cirsoide è una malattia molto rara. L'autore ha visto solo un caso fra 6000 casi chirurgici trattati negli ultimi 12 anni. Ordinariamente, l'aneurisma cirsoide occorre secondariamente a un'angioma congenitale.

Il trauma può essere il fattore causativo. *Il caso qui riportato sviluppò dopo* il trauma ma l'esistenza precedente di un'angioma non fù scoperta. L'invasione dell' occhio necessitò l'enucleazione. Guarigione seguì. Il trattamento migliore è la recisione col bistouri in uno o parecchi stadii perativi. La prognosi è sempre seria.

PAST PRESIDENTS HONORED

Living past presidents of the Northern Medical Association of Philadelphia were guests of honor at a testimonial banquet given by the Association March 18 at the Hotel Touraine, Philadelphia. Guest speakers were **Dr. W. Wayne Babcock,** F.A.C.S., and the **Hon. Charles Grakelow,** both of Philadelphia. Among the past presidents honored were **Drs. David Riesman** (president in 1902); **Thomas R. Currie** (1904); **Israel Binder**; Moses Behrend, F.A.C.S., F.I.C.S. (1916); **A. C. Morgan**; **Bernard Mann,** F.A.C.S.; **M. Bernstein**; **B. Ulanski**; **V. R. Manning**; and **Hyman I. Goldstein** (1939).

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Dr. Francisco Fonseca Garcia, secretary of the Mexican chapter of the International College of Surgeons, has been decorated by the French Government with the Academic Palms.

Professor E. Maragliano, professor emeritus of clinical medicine in the University of Genoa, founder of the first Italian institute for scientific and practical studies on tuberculosis, has died at the age of 91 years.

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Dr. James D. Bruce, of the University of Michigan, who was chosen president-elect of the American College of Physicians last year, was inducted into the office of president at the congress of the College held in Cleveland in April. He succeeded **Dr. O. H. Perry Pepper,** of Philadelphia. **Dr. Roger I. Lee,** of Boston, formerly professor of hygiene at the Harvard Medical School, was chosen president-elect.

Dr. Elliott P. Joslin, clinical professor of medicine, emeritus, at the Harvard Medical School, has been named successor to the late **Dr. Harvey Cushing** as honorary chairman of the Division of Medicine and Public Health of the President's Committee on University Development. The Committee is planning an [illegible] additional endowment for the Medical Sc[illegible] Yale University.

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in which the pterygium has had an excessive development, as a general rule, the corneal tissue is involved.

Another important anatomic fact is that the dissection should be from the periphery towards the center. This detail has given rise to special methods which will be treated in the course of the article.

ETIOLOGY

Very little is known of the etiology of pterygium. According to Horner, Fuchs, Zehender and other opthalmologists, it originates in the pinguecula. Degeneration of the conjunctiva produces a fatty infiltration of the intimate structure of this membrane and the membrane under it (the episcleral tissue), this degeneration resulting in a certain degree of mobility of the conjunctiva. In the pinguecula there is, in addition, new formation of elastic tissue, which shrinks the conjunctiva; when the tissue invades the sclerocorneal limbus it is easy to explain, up to a certain point, the retraction suffered by the conjunctiva and the formation of the fold of membrane which constitutes the pterygium.

However, recent biomicroscopic studies made by Coby and Galemaerts have demonstrated that the pinguecula is a senile degeneration of the conjunctiva and that it exists constantly in persons of advanced age. Therefore, the frequency of pinguecula does not correspond to that of the pterygium. On the other hand, there are other factors which contribute to its formation, such as powder, smoke and irritating gases, intense sunlight or other light, heat, etc. Its occurrence is exceptional in persons not exposed to one or more of these irritants. Pterygium frequently is found among the wealthy and, what is more curious, these cases have the characteristics of a hereditary disease.

Among the causes given have been slight trauma of the margin of the cornea which would incite the incursion of vessels in the conjunctival tissue of the cornea. Furthermore, this theory has been somewhat confirmed by the presence in the cornea of multiple small marginal ulcerations seen only by means of the slit lamp.

The vascular theory of pterygium formation is of great importance and has inspired a number of operative technics and therapeutic measures which usually give good results. One of the most ardent defenders of this theory is Prof. Obarrio of Panama, who has made a careful study of the vessels of the pterygium. According to this author, if the vessels end by forming loops after extirpation, the pterygium does not recur, but if they end in brush form which is directed towards the cornea, their recurrence is almost certain. To avoid it he advises cauterization, repeated until the desired modification in the vessels is obtained.

Terson attributes great importance to the pinching of the conjunctiva which determines the formation of the pinguecula.

In truth, the etiology is obscure and in certain cases one might invoke one or more of the causes mentioned. It is also necessary to cite other more obscure causes, such as alcoholism, hot climates, neurotrophic disturbances, etc.

TREATMENT

The treatment of the pterygium is surgical but even nowadays the results are uncertain. Analyzing, on the one hand, some of the operative methods which have been used, and on the other hand, the mistakes, faulty technic, and even the lightness with which this disease is considered, it is seen that a great number of the causes of failure reside not in the tenacity and recurrence of the condition, but in the difficulty of performing the operation in an irreproachable manner and in the belief that the thing is a simple one, whereas in reality it is not.

ported three operations performed above the thorax—one in the neck and the other two at the level of the lower jaw. From results obtained he concluded that analgesia in the head or neck had not proved satisfactory, inasmuch as patients complained of pain. He pointed out that cocaine causes mental anguish, partly because the patient hears all the details of the operation. He stated that spinal anesthesia presents difficulties when used higher up because analgesia appears slowly, large doses of cocaine are necessary and the sites for injection here are inadequate He concluded that (1) high or total anesthesia can be obtained by the injection of cocaine, even in small doses; (2) in order to assure anesthesia of the upper extremities, 4 cg of cocaine must be used; (3) anesthesia of the face or neck is not sufficient to warrant operating on these regions, partly because of the emotional distress produced in the patient by the operative manipulations; only when both general and local anesthesia are contraindicated should spinal anesthesia be employed for operations on the head, (4) isotonic solutions produce anesthesia less effectively than aqueous solutions because they seem to be less diffusible than the latter

In 1900, Tait and Caglieri reported the use of cocaine (injected at the level of the sixth cervical space) in six cases with good results

In 1901, Morton resected the maxilla under spinal anesthesia He also reported (1901) 253 operations performed under spinal anesthesia, 8 of which were above the diaphragm Later he reported a second series of 61 operations, 55 of which were performed on the head or upper extremities.

In 1908, Jonnesco advised puncturing the spine at different heights, according to the region to be operated upon, stovaine with strychnine and caffeine was recommended as the anesthetic The fatal accidents which resulted from cervical or upper dorsal puncture made it necessary for him to abandon this method.

Le Fillatre, in 1918, described a method conceived in 1902 and consisting in the puncture of the sacrolumbar space, the withdrawal of a variable amount of cerebrospinal fluid, according to the height of anesthesia desired (25 cc. to produce anesthesia as high as the nipples, 30 cc. for the head) and the injection of cocaine solution, the amount depending upon the region to be anesthetized (1 to 1.5 cc. for the legs, 2 cc. for the subumbilical region and 3 cc. for general anesthesia, barbotage being practiced three or four times).

Delmas[2], of Montpellier, suggested in 1918 a method for obtaining general anesthesia consisting in puncture at the lumbodorsal space, with the patient seated, and the forceful injection into the subarachnoid space, using a Luer syringe (20 cc), of 20 to 40 mg. of cocaine and 20 cc of cerebrospinal fluid —a rather crude and dangerous procedure.

Koster[3] published an article on spinal anesthesia with special reference to its use in surgery of the cranium, neck and thorax. In 1924 he began using spinal anesthesia in operations below the diaphragm. After previous injection of morphine and atropine, he injected 100 mg. of novocaine dissolved in 4 cc. of cerebrospinal fluid, making the injection at the level of the second lumbar space, the patient in lateral decubitus (usually left); he obtained with this method anesthesia extending as high as the nipples; in an attempt to produce anesthesia of longer duration, he increased the dose to 20 cg. and the quantity of cerebrospinal fluid to 8 cc., placing the patient *afterwards* in the Trendelenburg positon; accidentally he discovered that the patient became totally anesthetized According to Koster, vomiting often occurs, the respirations, almost diaphragmatic, being regular, slow and diminished in fullness Koster stated that the Trendelenburg position prevents third stage in which surgeons concentrated their attention on scraping and cauterizing the head of the pterygium with the thought that a great improvement had been made in the treatment of the disease. However, failures still occurred and the ingenuity of the operators was called into play to invent new methods of attaining success. Modifications were then adopted in accordance with experience and the different theories of etiology. Thus were brought into practice the procedures of inversion, pricking, deflection, transplantation, forcible separation, etc., some of which are still used at the present time with good results.

It would be tedious to review all of these technics, but they may be mentioned by groups, placing together those which have common characteristics and are essentially identical. At the same time their advantages, defects and disadvantages will be pointed out.

METHODS OF EXCISION

The methods of excision consist in extirpating the pterygium. If the body is triangular or quadrangular in form, the head is carefully loosened and resected. After scraping and cauterization of the bloody part of the cornea, the wound is sutured by simple approximation of the edges. Usually a horizontal scar remains; some uncovered areas of the sclera are left uncovered, these closing by granulation. The result is in an enlarged, irregular scar and if the excision is ample, the conjunctiva hangs over the cornea, causing recurrence or the formation of a false pterygium (figs. 3-6).

METHODS BY EXCISION AND CONJUNCTIVAL AUTOPLASTY BY TRANSFERENCE

These methods are, in principle, the same as those described above, but in order to close the wound and avoid in part irregular scars, excision of the pterygium is followed by incision and detachment of the conjunctiva, thus permitting an easier transference and the approximation of the edges by means of sutures. Some of these have the disadvantage that the remaining tissues project over the cornea, produce folds in the conjunctiva and cause horizontal scars (figs. 7-10).

One of the typical technics of this category is that described by Dr. Daniel M. Vélez, consisting in excising the pterygium in its entirety and later making an ample débridement of the conjunctiva towards the upper and lower parts of the cornea. By this ingenious detail the conjunctiva is easily freed and the portion showing loss of tissue as a result of excision of the pterygium may be covered.

METHODS BY EXCISION AND DEFLECTION

These methods, which are more nearly perfect than any previously described, entail more autoplasty and the formation of a deflected scar with respect to the palpebral fissure. Terson, Fernando López, Uribe Trincoso, Lipscomb and others use these methods.

METHODS BY SIMPLE DEFLECTION

With simple deflection the pterygium is uprooted and transferred to another place. Desmarres was the first to put this idea into practice. He first dissected the pterygium and then placed it in a new bed on the conjunctiva; afterwards he inserted it under the conjunctiva in order to cause a definite deflection of the vessels and to provoke the atrophy of the pterygium (figs. 11 and 12).

Later MacReynolds modified this procedure, inserting only the head, without total dissection of the pterygium, which is accomplished through an incision made on the lower edge of the pterygium (figs. 13 and 14). These procedures are inspired by the preponderant rôle attributed to the blood vessels in the formation and recurrence of the pterygium.

From my own observations, general anesthesia is produced only rarely when the patient is placed in the Trendelenburg position *after* the injection From studies made on patients I have reached the conclusion (expressed in the theses of Rodarte, 1918, and Garza Cantú, 1935), that to insure general anesthesia the patient must be placed *first* in an inclined position (at an angle of 45°) and the anesthetic then injected

AUTHOR'S TECHNIC

I shall point out only those details of my technic which distinguish it from other methods

Puncture The patient is placed in lateral decubitus although he may be seated in a chair if puncture is difficult, the initial position is relatively unimportant because the inclined position may be assumed after puncture and before injection of the solution Puncture is made between the fourth and fifth or the third and fourth lumbar vertebrae (fig 1)

Solution A solution of 0 2 cg of novocaine in 10 cc of cerebrospinal fluid is prepared Two ampules of 0 15 cg each can be dissolved in 3 cc of cerebrospinal fluid, to 2 cc of this solution (which contains 0 2 cg of novocaine) is added 8 cc of cerebrospinal fluid

Position The patient is then placed at an inclination of 45° *before the injection* is made (fig 2) This point distinguishes this method from the methods of others The injection is made and the operative field is then prepared When everything is in readiness, the Trendelenburg position is changed for the one desired at operation At the conclusion of the operation, the patient is placed in bed and kept in a horizontal position for several hours Although this is not indispensable, it is advisable to prevent or relieve headache

I have performed the following operations, a total of 505, from December, 1934, until June, 1939, without a single accident

Type of Operation	*No of Cases*
Thyroidectomy	211
Amputation of Breast	88
Lobectomy	2
Pneumotomy	1
Thoracoplasty	68
Operation on Maxilla	8
Operation on Mandible	
Uranostaphyloplasty and Plastic Surgery of Face	
Extirpation of Tumor of Parotid Gland	
Pharyngectomy	
Extirpation of Tumor of Neck	
Craniectomy	
Extirpation of Tumor of Orbit	
Operation on Upper Extremity	
Enucleation of Eye	
Esophagoplasty	
Operations on Mastoid	
Cervical Sympathectomy	
Ligation of Carotid Artery	
Operation in the Buccal Cavity	
Operations for Scars on Neck	
Operations of Tumor of Thymus	
Removal of Tumor of Thymus	
Total	505

In a later report I shall complete this study of my technic and will include the physiology indications contraindications, and other factors

SUMMARY

A chronological study of the evolution of generalized spinal anesthesia is made The author describes his personal technic and points out the ways in which his method differs from the methods of others He lists 505 operations on the head, neck and thorax which he has performed according to this technic, without a single accident

REFERENCES

1 Chaput Presse med (Nov 9) 265 1901
2 Delmas *Ibid*, (Mar 14) 1918
3 Koster Am J Surg, 1928

RÉSUMÉ

Analgésie rachidienne généralisée

L'auteur fait une étude de l'évolution de l'anesthésie rachidienne généralisée Il décrit sa technique personnelle et nous indique en quoi sa technique personnelle diffère des methodes préconisées par d'autres cliniciens Il cl [illegible] 505 [illegible]ra- tions sur la tête, le co [illegible] lesquelles il eut recc

conjunctival blood vessels. The variety of these procedures is almost infinite, as an incision made farther up or farther down, a flap placed upward or downward, and differences in the shape, size and number of the incisions constitutes sufficient motive for describing a new procedure for each variation in technic. Typical methods are those of Dr. Fernando López, who makes a small triangular flap, thereby obtaining an oblique and lineal scar (figs. 15-18) and of Dr. Terson, who makes a rectangular flap which descends and covers the conjunctival breach (figs. 19 and 20). Some of the procedures of this category have the great defect of making too ample dissections of the conjunctiva, the resulting flaps hanging over the cornea and covering its bleeding portion, thus leading to recurrence. Another objection to these procedures is the difficulty of their complicated technics.

METHODS OF TRANSPLANTATION

These methods consist in replacing the pterygium by a piece of conjunctiva taken from the unaffected eye, if it is healthy, or from the healthy part of the diseased eye. Instead of a conjunctival graft a portion of labial mucous membrane or even a bit of skin may be used. These procedures can be recommended only in the almost irreparable cases, such as those in which the pterygium is complicated by symblepharon, atrophy of the conjunctiva or marked retraction of the tissues and with immobility of the ocular globe, a frequent sequela in cases of pterygium which have been operated upon and have recurred several times.

METHODS BY FORCIBLE SEPARATION

These do not exactly constitute a group of procedures but rather of variations employed by operators. Attention is called to the manner in which some operators separate the head from the remainder of the pterygium; that is to say, they make a real extirpation, proceding from the periphery towards the center. For this some use a squint hook; and Prince, Webster, Fox and others accomplish this by means of sutures previously placed in the body of the pterygium. In this group are those operators who dissect it from the periphery towards the center. The extirpation is easy and almost never is a residue of the pterygium left in the cornea. Operating from the periphery towards the center has an anatomical foundation.

DEFECTS AND MISTAKES IN TECHNIC

From the foregoing enumeration of some of the principal operative methods, it will be seen that defects and mistakes in technic abound and among them are: too wide dissection of the conjunctiva, especially if this is made in the sclerocorneal limbus itself which makes autoplasty at a later date difficult and predisposes the conjunctiva to project over the cornea; the development of horizontal scars and of folds produced by granulation tissue abundant proliferation of the vascular tissue; the persistence of the hypertrophied episcleral tissue which raises the conjunctiva and makes it more bulky, so that it is easily moved and folded by the eyelids; failure to dissect carefully the head of the pterygium, which may have left residue of the cornea; the exaggerated scraping of the bleeding surface of the cornea or the cauterization which is made to destroy the rest of the pterygium, both of which only provoke an extensive and profound loss of substance and the destruction of Bowman's membrane, giving rise to a scar which will fill the breach with granulation tissue and which will cause recurrence. Finally, the tearing of the flaps, the imperfection of the operation and some other defects of less importance must be taken into consideration. All represent a very important contingent in the recurrence of the disease, which usually is attributed to its tenacity. However, an operation performed care-

THE TREATMENT OF PTERYGIUM

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ONE of the ocular diseases known to medicine since the most remote times is pterygium. It would be almost impossible to review the entire literature on this subject, considering that in the course of the years innumerable methods of operation have been constantly accumulating for the treatment of this disease.

A pterygium consists of a triangular shaped conjunctival fold, the vertex of which invades the cornea. The base is along the bulbar conjunctiva from which it extends and with which it is confused. Its direction is always horizontal, corresponding to the portion of conjunctiva between the palpebral fissure. Usually it is found in the inner or nasal area, rarely in the external or temporal portion. Sometimes it occurs simultaneously in both areas and in both eyes. It is similar in appearance and development to a neoplasm of the conjunctiva; nevertheless, it is not a new growth, but a simple conjunctival fold attracted slowly and gradually by its vertex from the edge of the cornea towards its center, until it invades the pupillary field, adhering firmly to the corneal tissue.

It is easy to demonstrate that a pterygium is a simple conjunctival fold by inserting a catheter between it and the bulbar conjunctiva, both from above and below, this catheter coming in contact with the bottom of the sac which forms the fold. Moreover, because of its elasticity, the pterygium, if carefully detached from the cornea, tends to resume its normal position before advancement.

A pterygium can be differentiated into a vertex or head, a base or body, and a neck, which is the portion that unites the other two parts at the sclerocorneal limbus. For a better comprehension of the operative technic to be described in this paper, it would be well to differentiate two other elements: one the foot, or pedicle, that is to say, the portion of conjunctiva adhering to the ocular globe extending between the two lower portions of the sac which forms the conjunctival fold; and the fatty cushion formed by the episcleral tissue which is hypertrophied and supercharged with fatty cells and elastic fibers (fig. 1). Normally this tissue is constituted of loose cellular tissue, but once degeneration begins, fatty cells invade the entire body of the pterygium. This detail must be borne in mind during extirpation. In operating the pterygium usually is dissected and extirpated completely, with removal of a great part of the conjunctiva, and but a minimum of the fatty cushion, a large area of the sclera remaining exposed. It is easy to remove the head of the pterygium and leave the foot intact, the result being a very small loss of conjunctival tissue (fig. 2).

By studying the case with a slit lamp one can determine whether Bowman's membrane or the tissue of the cornea itself has been invaded. The most favorable cases are those in which the process has not invaded Bowman's membrane, a condition found in recent cases in the form of benign evolution; but in old cases, such as malignant ones, or those sumes a form similar to that of the healthy conjunctiva.

After performing this part of the operation, an incision is made on the portion of the conjunctiva farthest from the limbus (*A-B*, fig. 23). Another incision (*C-D*, fig. 23) of the same size and in a direction opposite to that of the former, 2 mm. from the limbus, is made. The result is two small flaps opposed by their vertex.

By means of a suture the end of flap *A* is taken to the bottom of the incision in *C-D*, and the point of flap *C* is taken to the bottom *B* of the incision *A-B* (figs. 23 and 24).

From this removal of the flaps an N-shaped wound results; a scar completely perpendicular to the palpebral slit forms, provoking a diversion of the vessels also in this direction (fig. 24).

To finish the operation, as many stitches will be taken as are necessary to obtain the correct support of the flaps and to avoid their projection. A stitch should systematically be applied between the portion adhering to the limbus and the diverted flaps (fig. 24).

In the technic just described two principal details stand out: The first is the necessity of respecting the foot of the pterygium, too wide dissection of the conjunctiva being thus avoided; the second is the necessity for removing the episcleral tissue so that the conjunctiva is permitted to return to its normal relations with the sclera, to which it adheres, and this, in turn, prevents it from being pinched and traumatized by winking.

The results obtained with this procedure are satisfactory, although there have been some recurrences. Precautions are less necessary with this procedure than with many others and the slight mobility of the conjunctiva over the cornea does not make the use of a binocular bandage indispensable as in the other classical procedures.

In addition to these operative methods, the author has used several physical agents for the treatment of pterygium, among them diathermocoagulation and roentgenology.

The action of diathermocoagulation, despite its penetrating, modifying and sterlizing effect, acts as a simple burn, and no matter how completely it is done, it leaves elements in the cornea sufficient to provoke its recurrence. If some authors have been satisfied with the procedure, it is probable that their conclusions in most cases have been premature and that they have published them only because of their enthusiasm over the immediate results.

Roentgen rays are not capable of destroying a pterygium as they destroy a neoplasm, but they can convert a progressive pterygium into a stationary one, making it thinner, more pallid and poorly vascularized and therefore, more easily tolerated by the patient. A series of postoperative irradiations was given by the author in those cases in which a tendency towards reproduction was noticed.

SUMMARY

The etiology of pterygium is obscure. It is probably caused by one or more of the following factors: degeneration of the conjunctiva with simultaneous formation of elastic tissue in the pinguecula; powder, smoke and irritating gases; intense light or heat; and trauma. The author's technic of operation, herein described, is a combination of what he considers the important elements of operations commonly practiced for this condition. Results obtained with his procedure have been satisfactory, although there have been some recurrences. However, fewer precautions are necessary with this method than with many others.

RÉSUMÉ

Le traitement du ptérygion

L'étiologie de cette affection est obscure. Parmi les facteurs étiologiques on peut citer: dégénération de la con-

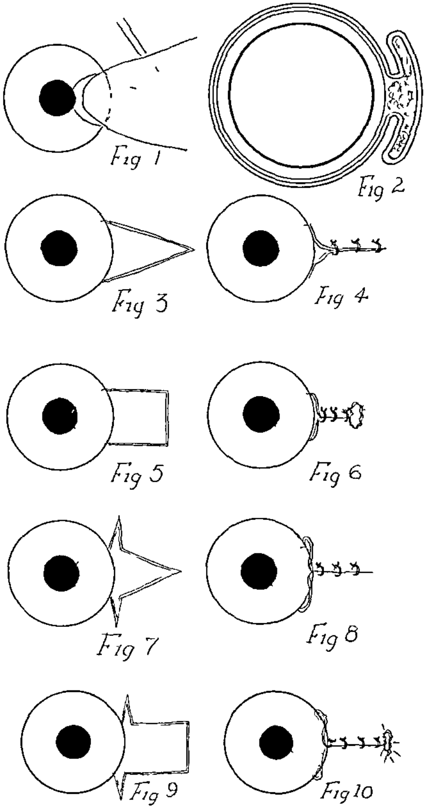

Fig 1 Foot of pterygium indicated by the dotted lines

Fig 2 Foot of pterygium and the episcleral tissue filled with fatty cells

Figs 3 and 5 Methods by simple excision

Figs 4 and 6 Same procedure as in Figs 3 and 5 with sutures

Fig 7 10 Methods by excision and conjunctival autoplasty by transference

In the earlier days of medicine the treatments for pterygium were excision, cauterization and ligation, but the end result was always recurrence Later, simple excision was complemented by suture of the wound In 1854 Coccius pointed out the advant[illegible] in preventing recurrence

ACIDOSIS IN SURGERY

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THE maintenance of the normal hydrogen ion concentration of the blood is of greatest importance. Judged by its volumetric value, blood plasma is strongly alkaline, although the *p*H is 7.38; but the ionic reaction by electrometric methods reveals it to be only slightly alkaline and almost neutral.

The discrepancy between these two tests is due to two causes: (1) the presence of buffer salts, consisting of H and OH ions, which may be supplied according to the needs of the organism to neutralize excessive acids or bases in the blood; (2) the resistance of the blood to changes in reaction, in addition to hydroxyl ions, which makes it capable of neutralizing acids, this being the mechanism whereby the organism defends itself from the invasion of acid products of metalbolism.

The ionic and osmotic equilibrium of the plasma is maintained by carbonic acid, a weak and volatile acid which can easily be eliminated through the lungs. It is formed from the products of organic combustion, the resulting CO_2 being dissolved in the form of H_2CO_3.

The quantity of CO_2 in the blood is an indicator of the fixed acids contained in the blood, just as the tension in the pulmonary circulation indicates the CO_2 tension of the alveolar air. A decrease in the alveolar carbon dioxide combining power indicates an alteration in the hydrogen ion equilibrium or the presence of acids in the blood, and inversely, an increase of the alveolar CO_2 indicates a reduction of the fixed acids of the blood.

The acidity of the blood depends on its capacity to combine with CO_2. When this capacity is reduced by the p of acid products of metabolism to at which the acid products exc alkali reserve, acidosis results. (other hand, when the balance b the alveolar CO_2 and the combin of the blood is constant, there only a reduction of the alkali res the blood. The acidosis would compensated if a real increase in ions occurred, a result which wo low the formation of acids in ance; this is observed only in t ments preceding death.

The principal buffers are bicar of soda, mono and dibasic phos proteins and hemoglobin.

When the bicarbonate concent of the blood is lowered, it is su that the alkali concentration is als ered. This alkali reserve is in ratio to the bicarbonate contents always reduced in the presence normal metabolic processes, as i betes, when organic acids are in sive quantity. For the maintena the normal *p*H of the blood it is sary that the reduction of the alk serve be balanced with the equi lessening of the CO_2 tension.

An aid in this regulatory pro the respiratory system. The respi center is a regulator of the circul pulmonary equilibrium and for th son of the acid-base equilibrium blood, according to the theories of terstein and Haldane.

The kidney, which eliminates whether it is acid or alkaline and way subtracts from the organis acid or alkaline valencies, also ass maintaining a constant acid-base librium. When the kidney does no

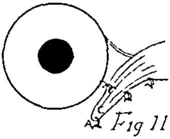


Fig 11

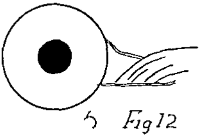


Fig 12

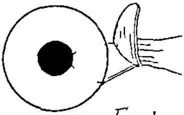


Fig 13

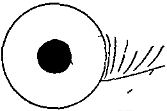


Fig 14

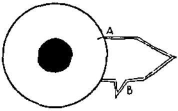


Fig 15

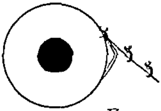


Fig 16

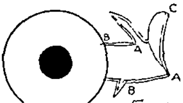


Fig 17

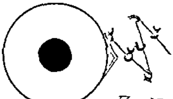


Fig 18

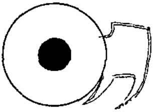


Fig 19

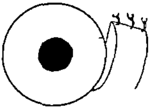


Fig 20

Figs 11 14 Methods by *simple defection* (Desmarres and MacReynolds)

Figs 15 20 Methods by autoplasty of flap (Fernando Lopez Terson)

MacReynolds' method gives good results with respect to nonrecurrence but the reddish and bulky appearance of the conjunctiva persists for a long time His procedure also has the advantage of not dissecting the pterygium a circumstance which is principally responsible for the good results obtained

METHODS BY AUTOPLASTY OF FLAP

These procedures consist of excising the pterygium and covering the exposed area with conjunctival flaps, to meet two cardinal purposes (1) to replace the diseased conjunctiva with normal conjunctiva, and (2) to properly place the operative scar and the direction of the coagulation time of the blood, the blood urea, the leucocyte count and the blood pressure should all be tested carefully. Light narcotics given before the operation assist in allaying the patient's fears.

Chilling or traumatism to the tissues or viscera during the operation may produce acidosis, as will also hemorrhage with secondary anemia and the lessening of the blood volume.

One of the principal causes of acidosis in surgery is the anesthetic, especially chloroform. Ether decreases the alkaline reserve and provokes a lowering of the blood pressure, according to Cannon; Dale has shown that ether provokes alterations of the capillary walls which make them more permeable, permitting the flow of plasma into the interstitial spaces, and this, in turn, lessens the blood volume, a decrease in blood pressure and other previously described sequelae occurring. Gramen found that local anesthesia can also produce this condition. In spinal anesthesia the presence of acetone in the urine has been found in 40 per cent of the cases, but real acidosis has not been demonstrated. With sodium pentothal a transitory lowering of the arterial blood pressure is observed. Undoubtedly the best anesthetic is one consisting of a mixture of different gases. Balsoforme is an inhalant anesthetic that we frequently employ and with which we have observed only a slight transitory lowering of the blood pressure

Postoperative treatment should include rest and isolation and the avoidance of chills. Opium and its derivatives should be administered according to the needs of the patient. Abundant liquids should be given by enteroclysis, hypodermoclysis or by mouth. Infection is an important factor in acidosis and should be guarded against.

SYMPTOMS OF ACIDOSIS

If, despite precautions, acidosis should develop, its clinical manifestations appear usually from the second to the third day. The prodromal symptoms are instability, insomnia and slight dyspnea, followed by hyperpnea without cyanosis, bilious vomiting (never dark), depression and apathy, cephalalgia, lowering of the arterial pressure, rapid pulse (120 to 150 or more), cold sweats, cyanosis and chilling of the extremities. The face may present a peritoneal facies, with sunken eyes and dry, red tongue and gums. The breath may have an acetone odor. The abdomen is always painless and soft, exhibiting a condition intermediary between that in which pathology is present and that in which symptoms are absent. The urine contains albumin and casts, and perhaps acetone, diacetic and beta-oxybutyric acids. The absence of these ketonic acids in the urine does not preclude the diagnosis of acidosis.

DIFFERENTIAL DIAGNOSIS

Among the postoperative syndromes to be considered in the differential diagnosis of acidosis are acute peritonitis, intestinal obstruction, paralytic ileus and acute gastric dilatation. In each of these four conditions local symptoms, such as tympanites and rigidity, are present; vomiting is bilious at first, but the vomitus soon becomes dark or green in color. These symptoms are not present in acidosis.

In alkalosis there are always painful muscular contractions, with acid and dark colored vomitus, dry skin and meteorism, without rigidity. These symptoms are not found in acidosis.

In hepatic disease, acute nephritis and uremia, clear and precise symptoms are usually present, corresponding to the pathologic entity which they accompany. Laboratory findings, however, are more than sufficient to make the differential diagnosis.

TREATMENT

The treatment consists essentially in the administration of fluids charged with fully with some of the procedures herein mentioned, the operator being guided strictly by the exact details of the operative technic, is likely to give excellent results. Otherwise it is hard to explain the fact that they are recommended and used by their respective authors.

STANDARD OF OPERATIVE TREATMENT

After the defects have been pointed out, it is fitting to indicate the standard by which operative methods should be governed. For all practical purposes they may be reduced to three:

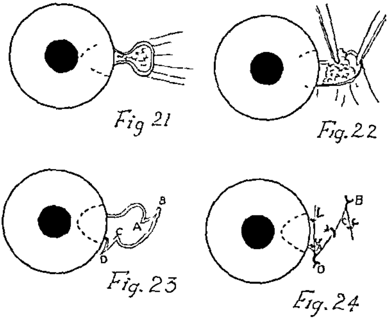
1. Careful dissection of the head of the pterygium from the periphery to the center of the cornea, respecting Bowman's membrane and the corneal tissue.
2. Respect for the pedicle of the pterygium and avoidance as nearly as possible of the dissection of the pterygium itself, with ample excision and dissection of the conjunctiva.
3. The making of an exact autoplasty without stretching, projection of the conjunctiva over the cornea being avoided and an attempt being made at the same time to obtain a scar remote from the palpebral slit, in order that the blood vessels may be properly directed.

The author's method which is described below has given good results. It is a selection of elements and details taken from various procedures.

AUTHOR'S TECHNIC

Anesthesia is induced by instillation of a solution of cocaine with the addition of 5 per cent adrenalin and the injection of a small amount of novocaine into the body of the pterygium

The head of the pterygium is grasped with a forceps with light traction. A cataract knife is inserted under the pterygium towards the limbus, and with the back of the knife the dissection is made slowly from the periphery towards the center, the operator taking care not to leave any residue over the cornea. If the dissection has been done well, a smooth surface slightly brilliant, mirror-like and transparent, will remain, corresponding to the external layer of the cornea. To make this dissection accurately it is well to use a binocular loupe.



Figs 21-24 Author's technic.

Once the pterygium is dissected, it is grasped by the vertex with a fine forceps and the portion corresponding to the head is cut with a small scissors, care being taken to make the cut in a direction perpendicular to the fold. The result is in an oval-shaped loss of substance, whose greatest diameter is vertical (fig. 21).

The remainder of the pterygium is grasped at the edge of the wound with a forceps and is brought towards the palpebral commissure, in which position it is maintained by the assistant. Meanwhile the operator removes the body of the pterygium from the hypertrophied episcleral tissue, exercising care not to tear the conjunctiva, either at the foot or at the fold portion corresponding to the body. It is surprising at times to see the quantity of fatty t whi must be removed to leave cl and to note how the con vl forms the body of the 1,

diferenciarse de peritonitis agúda, obstrucción intestinal, ilio paralítico y dilatación gástrica. El tratamiento consiste en la administración de fluidos con glucosa, insulina, alcalinos y transfusión de sangre.

RIASSUNTO

L'Acidosi nella chirurgia

I fattori chimichi e fisiologici che producono l'acidosi sono descritti. L'acidosi occorre generalmente quando il biossido di carbonio nel plasma sanguigno è ridotto a meno di 55 volumes per cento. Nel Messico, tuttavia, la condizione normale è, per approssimazione, 10 volumi più bassa che la media al livello del mare. Aiuti per prevenire l'acidosi nella chirurgia sono una disposizione di mente favorevole nell'ammalato; prove complete di laboratorio, comprendendo prove di funzione di rene e di fegato; evitazione di raffreddamento subitaneo e traumatismo durante l'operazione; e la scelta dell'anestetico corretto. Si deve differenziare l'acidosi chirurgica dalla peritonite acuta, dall'ostruzione intestinale, ileo paralitico e dilatazione gastrica. Il trattamento consiste nella somministrazione di liquidi con glucosio, insulina, alcali e di trasfusioni di sangue.

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Dr. William D. Haggard, of Palm Beach, Florida, died January 28 at the age of 67 years. He was past president of the American Medical Association and of the American College of Surgeons. At one time he was professor of surgery and clinical surgery at Vanderbilt University.

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Revista Mexicana Medicina dedicated its January 10 number to the Mexican chapter of the International College of Surgeons.

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Revista Mexicana Pasteur dedicated its February number to the Mexican chapter of the International College of Surgeons.

Dr. Werner Spalteholz, Dr. Med. and LL.D., professor of anatomy at the University of Leipzig, died January 12.

—o—

Dr. René J. Dubos, of the Rockefeller Institute for Medical Research, was presented with the John Phillips Memorial Award for meritorious work in internal medicine at the annual congress of the American College of Physicians, which opened at Cleveland on April 1.

—o—

Sir Robert Hutchison was reelected president of the Royal College of Physicians, London, on March 18.

THE NEXT INTERNATIONAL ASSEMBLY OF THE INTERNATIONAL COLLEGE OF SURGEONS WILL BE HELD IN MEXICO CITY, MEXICO, AUGUST 10-14, 1941.

junctive avec formation simultanée de tissu elastique dans la pinguécule, poudre, fumee gaz irritants lumiere intense et grande chaleur traumatisme L'auteur décrit en détail la technique de son operation Ses resultats furet satisfaisants, quoiqu'il eût quelques récidives Neanmois, moins de precautions sont nécessaires avec sa methode qu'avec les autres méthodes

ZUSAMMENFASSUNG

Die Behandlung des Pterygium

Die Atiologie des Pterygium ist noch dunkel Es wird wahrscheinlich durch einen oder mehrere der folgenden Faktoren hervorgerufen Degeneration der Conjunctiva mit gleichzeitiger Bildung elastischen Gewebes in der Pinguecula, Staub, Rauch und reizende Gase, starkes Licht Hitze und Trauma Die Operationstechnik des Autors ist eine Kombination aus den wichtigsten Teilen der verschiedenen Methoden die bisher gebraucht wurden Die Resultate mit dieser Methode waren zufriedenstellend obgleich einige Rezidive vorkamen Mit dieser Methode ist weniger Vorsicht notig als mit vielen anderen

SUMARIO

El tratamiento del terigeon

La etiologia del terigeon es obsecura Este es probablemente causado por uno o mas de los factores siguientes degeneracion de la conjunctiva con la formacion simultanea de tejido elastico en la pinguecula polvo, humo y gases irritantes, luz intensa y calor, y traumatismo La técnica de operacion del autor, descrita aqui, es una combinacion de lo que el considera los elementos importantes de operaciones comunmente practicadas por esta operación Los resultados obtenidos con este precedimiento han sido satisfactorios, aunque hallan habido algunas recurrencias De cualquier modo las precauciones son menos con este metodo que con cualquiera de los otros

RIASSUNTO

La cura del pterigio

La etiologia del pterigio è oscura Probabilmente è causata da uno o piu dei seguenti fattori degenerazione della congiuntiva colla formazione, simultaneamente, dei tessuti elastici nella pinguecula, polvere, fume e gassi irritanti, luce o calore intenso e trauma Il tecnico dell autore, qui descritto, è, egli considera, una combinazione di tutti gli elementi importanti delle operazioni ordinariamente praticate per questa condizione I risultati ottenuti con il suo procedimento sono soddisfacenti benchè ci sono stati dei ricorrimenti Tuttavia, meno precauzioni sono necessarie con questo metodo che con molti altri

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APPLICATIONS FOR SCIENTIFIC EXHIBITS FOR ASSEMBLIES SHOULD BE ADDRESSED TO DR CHARLES H ARNOLD, SUITE 903, 94 O ST, LINCOLN, NEBRASKA

SUMARIO

Anestesia de las amigdales faringeales á travez de la nariz

El autor obtiene anestesia de las amigdalas faringeales introduciendo en la porcion mas ancha de las cavidades nasales una sonda, uno de cuyos extremos se ha envuelto con algodon y ha sido sumergido en una solución anestésica.

RIASSUNTO

Anestesia delle tonsille faringee

L'autore ottiene l'anestesia delle tonsille faringee coll'introduzione di una sonda che contiene sulla punta un poco di cotone bagnato colla soluzione anestetica nella parte piu large di una delle cavita nasali.

* * *

NATIONAL GASTROENTEROLOGICAL ASSOCIATION

THE fifth annual convention of the National Gastroenterological Association will be held June 4, 5 and 6 at the Hotel Roosevelt, New York City. Members of the executive board will take turns in presiding over the scientific sessions.

Dr. Anthony Bassler, of New York, is president; Dr. Horace W. Soper, of St. Louis, first vice-president; Dr. C. J. Tidmarsh, of Montreal, second vice-president; Dr. Felix Cunha, San Francisco, third vice-president; Dr. Roy Upham, New York, secretary-general.

Papers will be presented by Drs. W. Wayne Babcock, of Philadelphia; Chester S. Keefer, of Boston; Max Einhorn, of New York; Stanley P. Reimann, of Philadelphia; A. L. Levin, of New Orleans; J. Louis Ransohoff, of Cincinnati; Robert Zollinger, of Boston; J. S. Diamond, S. A. Siegel and S. Myerson, of New York; Richard B. Cattell, of Boston; Charles A. Doan, Philip T. Knies and Clark P. Pritchett, of Columbus, Ohio; Willard D. Mayer, of Detroit; I. R. Jankelson and Charles W. McClure, of Boston; Boris P. Babkin, of Montreal; G. M. Russell, of Billings, Mont.; J. D. Adamson, of Winnipeg, Canada; J. Harvey Black, of Dallas, Texas; Horace W. Soper, of St. Louis; Isidore Cohn, of New Orleans; Anthony Bassler, of New York; Tate Miller, of Dallas, Texas; and Harry P. Smith, of Iowa City, Iowa.

Round table conferences will be held during the luncheon hour each day.

Dr. Henry Kendall, of New York, is chairman of the program committee.

Sir Humphry Rolleston has been admitted to honorary fellowship in the Royal College of Surgeons, London. Since 1924 he has been chairman of the executive committee of the Imperial Cancer Research Fund.

Dr. André Gratia, professor of bacteriology at Liège University, has been awarded the Helme Prize by the Académie de Médecine, Paris, for his work on bacteriophages.

tion normally, elimination may be so reduced that the constancy of the reaction of the blood cannot be maintained. This may occur when the kidney is diseased.

The liver supplies ammonia to saturate the accumulating acids and reduces in proportion the production of urea, as is observed by the increased elimination of ammonia in the urine and the lessening of the urea This organ, then, serves as a regulator of the acid-base equilibrium.

The capillary endothelium permits the interchange of alkali between the blood and the tissues Other excretary organs, such as the intestine and sudoriferous glands, assist in regulating the balance between alkalies and acids, the diarrhea and profuse sweating observed in cases of acidosis being instances of the operation of this mechanism.

An analytical study of the different factors which control acidity and alkalinity is necessary for the determination of the *p*H of the blood These consist in: (1) a study of the lowering of the alkaline reserve with the Van Slyke apparatus; (2) a measure of the lowering of the CO_2 tension of the alveolar air which indicates the lowering of the tension of this gas in the blood; (3) tests for acetone, acetic acid and beta-oxybutyric acid in the urine; (4) Sellard's test of the tolerance to sodium bicarbonate.

Normally in the adult the quantity of CO_2 in the blood plasma is equivalent to 55 volumes per hundred When the capacity of the CO_2 is reduced below 55 volumes, acidosis is said to exist Myers measures the degree of acidosis according to the alveolar tension of the CO_2 When it varies from 52 to 40, he designates the condition as latent acidosis; from 40 to 31, as manifest acidosis; and when it falls below 31 (16 being the lowest tension observed which was not followed by death) he calls it grave acidosis

In the valley of Mexico the figures are lower than those found at sea level, without acidosis being present, according to Manzanilla. The difference in clinically normal individuals is approximately 10 volumes per hundred lower than the average at sea level. This is due largely to the total atmospheric pressure which is 585 mm. instead of 760 mm.

The circulation of the blood is a protection against acidosis. When the arterial blood pressure is very low, the volume of blood sent to the tissues at a certain time may be greatly reduced and therefore the quantity of oxygen received by the tissues will also be reduced. Muscular or intellectual fatigue, the breathing of vitiated air, exhaustion, etc., will result in the production of lactic acid instead of carbonic acid as a metabolic product of the tissues, and the lactic acid, which is nonvolatile, cannot be eliminated through the respiratory tract. Its accumulation and the formation of sodium lactate in the plasma instead of sodium bicarbonate give rise to the development of acidosis.

ACIDOSIS IN SURGERY

Acidosis occurs fairly frequently in surgery, making its appearance usually during the postoperative period. In the preparation of the patient for operation and in the preoperative care, the causes of acidosis should be anticipated and prevented, if possible. The emotional factor must be considered in preoperative care because psychic exhaustion may produce acidosis just as physical exhaustion causes it Crile has given a masterly description of the manner in which this force operates The best way to overcome it is to win the complete confidence of the patient.

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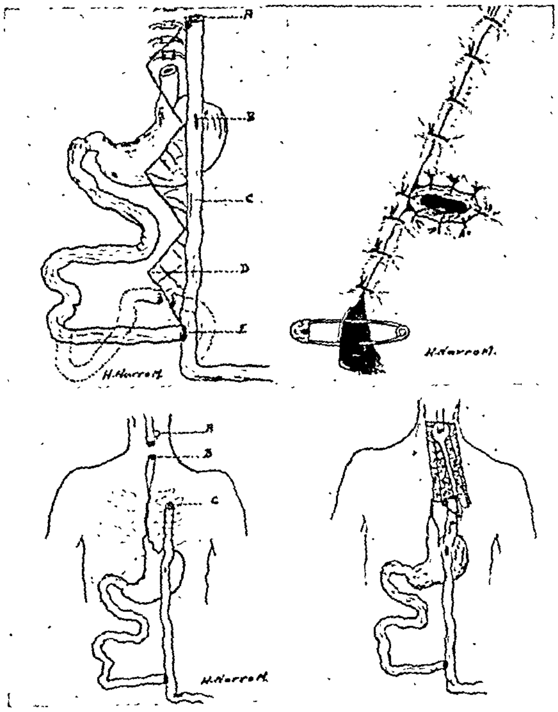

Fig. 1. Upper Left. *A*, Jejunum placed at the level of the fourth intercostal space. *B*, Gastrojejunal anastomosis. *C*, Jejunum. *D*, Vascular arches sectioned. *E*, End-to-side anastomosis.

Fig. 2. Lower Left. *A*, Cervical esophagus sectioned. *B*, Distal end of the stenosed esophagus. *C*, Jejunum sutured to the skin.

Fig. 3. Upper Right. Suturing of proximal portion of esophagus to skin of neck 3 or 4 fingerbreadths from the clavicle.

Fig. 4. Lower Right. Plastic operation of skin to form the tunnel between the cervical esophagus and the prethoracic jejunum.

On August 5, 1938, the second stage of the operation was performed. Under general anesthesia a left lateral incision was made along the sternocleidomastoid muscle; dissection proceeded by layers until the middle cervical fascia and omohyoid muscle were divided in order to expose the esophagus. The esophagus was sectioned (fig. 2) between two forceps as close to the stricture as possible. The distal portion was buried, one end being left in the mediastinum. The upper or proximal portion was sutured to the skin of the neck three or four fingerbreadths from the clavicle (fig. 3).

The forceps which closed the superior portion, now sutured to the skin, was left in place for several days until it came off with the sloughing tissue.

On October 12, 1938, a minor plastic operation was necessary because the cervical orifice of the esophagus was partially obstructed by the formation of scar tissue.

The third stage of the operation was performed June 23, 1939. A cutaneous tunnel about 2 cm. in diameter was established be-

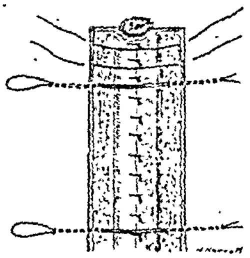

Fig. 5. Edges of flap from which cutaneous tunnel was constructed sutured with catgut and reinforced with silk.

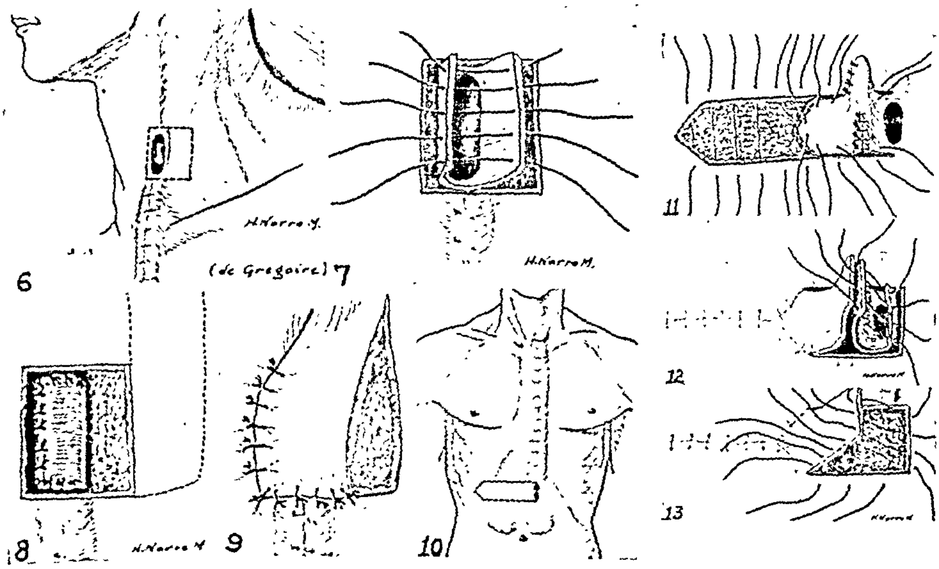

Fig. 6. Esophageal orifice. Figs. 7-9. Steps followed to establish communication between cervical esophagus and cutaneous tunnel. Figs. 10-13. Steps followed in establishing communication between cutaneous tunnel and jejunum.

glucose, parenterally, intravenously, or by enteroclysis or hypodermoclysis. Insulin alkalies in the form of sodium bicarbonate and sodium citrate and blood transfusions are of great benefit.

SUMMARY

The chemical and physiological factors which produce acidosis are described. Acidosis occurs usually when the carbon dioxide in the blood plasma is reduced below 55 volumes per hundred. In Mexico, however, the normal condition is approximately 10 volumes lower than the average at sea level. An aid to the prevention of acidosis in surgery is a favorable mental attitude on the part of the patient. Thorough laboratory tests, including kidney and liver function tests, avoidance of chilling and traumatism during the operation and the choice of the proper anesthetic are essentials. Surgical acidosis must be differentiated from acute peritonitis, intestinal obstruction paralytic ileus and gastric dilatation. Treatment consists in the administration of fluids with glucose, insulin alkalies and blood transfusions.

RÉSUMÉ

l'Acidose en chirurgie

Les facteurs chimiques et physiologiques determinant acidose sont etudiés. L'acidose survient generalement quand le dioxide de carbone dans le plasma du sang est reduit en dessous de 55 volumes pour cent. A Mexico, la condition normale est approximativement 10 volumes en dessous de la moyenne au niveau de la mer. Une attitude mentale favorable de la part du malade aide a prévenir l'acidose, d autres facteurs prophylactiques sont les épreuves fonctionnels du foie et des reins, protection du malade contre de refroidissement le minimum de traumatisme dans le cours de l'acte operatoire le choix heureux de l'anesthésique. Ne pas confondre l acidose avec la péritonite aigue, l obstruction intestinale, l'iléus paralytique et la dilatation gastrique. Pour le traitement avoir resours a la glucose, à l insuline, aux alkalins et aux transfusions sanguines.

ZUSAMMENFASSUNG

Acidose in Chirurgie

Die chemisch physiologischen Faktoren, die Acidose hervorrufen sind beschrieben. Acidose tritt gewohnlich auf wenn Kohlendioxyd in Blutplasma unter 55% reduziert ist. In Mexico allerdings ist der Kohlendioxydspiegel 10% tiefer als am Meeresspiegel. Eine Hilfe in der Verhutung der Acidose ist eine gunstige geistige Einstellung des Patienten, sorgfaltige Laboratoriumsuntersuchungen, einschliesslich Nieren- und Leberfunktionsprufung, Verhutung von Schuttelfrost und Traumatisation wahrend der Operation und die Wahl des entsprechenden Narkosemittles. Chirurgische Acidose muss von acuter Peritonitis, Darmverschluss, paralytischem Ileus und Magenerweiterung unterschieden werden. Die Behandlung besteht in Flussigkeitszufuhr mit Zucker, Insulin, Basen und Transfusionen.

SUMARIO

Acidosis en cirugía

Los fenomeno quimico y fisiologico que produce acidosis son descritos. Acidosis ocurre genaralmente cuando el anhidrido carbonico en el plasma sanguineo es reducido bajo 55 volumenes por ciento. En Mejico la condicion normal es aproximadamente 10 volumenes mas bajo que el promedio al nivel del mar. La ayuda a la prevencion de la acidosis en cirugía es una actitud mental favorable en parte del paciente, examen de laboratorio completo incluyendo pruebas funcionales de los riñones é higado, evitar la exposición al frio y traumatismos durante la operación, y escoger la anestesia apropiada. Acidosis quirurgica debe de reported, was unsuccessful because of the presence of carcinomatous degeneration.

SUMMARY

A method of esophagoplasty is described whereby a loop of the jejunum was resected; this loop and a tunnel formed from cutaneous tissue were substituted for the stenosed portion of the esophagus. The distal end of the jejunal loop was anastomosed to the stomach, and the proximal loop, to the cutaneous tunnel; the proximal end of the tube was sutured to the esophagus after the stenosed portion had been removed. The operation was performed in seven stages. Perfect function resulted.

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RÉSUMÉ

Esophagoplastie préthoracique

Une anse de jejunum est réséqués et cette anse et un tunnel formé de tissu cutané sont substitués à la portion sténosé de l'ésophage. L'extrémité distale de l'anse jejunale est anastomosée à l'estomac et l'extrémité proximale au tunnel cutané. L'extrémité proximale du tunnel est suturée à l'oesophage après l'ablation du segment sténose. L'opération fut exécutée en sept étapes. Le résultat fonctionnelle est excellent.

ZUSAMMENFASSUNG

Antethorakale Thorakoplastik

Es wird eine Methode der Oesophagoplastik beschrieben, bei welcher eine Jejunumschlinge reseziert wird. Diese Schlinge und ein Hautschlauch ersetzen den verengerten Spiseröhrenabschnitt. Das distale Ende der Schlinge wurde mit dem Magen, das proximale mit dem Hautschlauch vereinigt. Das proximale Ende des Hautschlauches wurde mit der Speiseröhre vereinigt nach Entfernung des verengerten Abschnittes. Die Operation wurde in sieben Zeiten ausgeführt. Das Resultat war ausgezeichnet.

SUMARIO

Esoagoplastia pretoráxica

Un método de esofagoplastia es descrito donde una asa del yeyuno fue resecada y esta asa y un tunel hecho de tejidos cutaneos fueron substituidos por la porcion estenozada del esofago. La porción distal del asa yeyunal fue anastomozada á el estómago y la porción proximal, á el tunel cutaneo; la porción proximal del tunel fue suturada á el esofago despues que la porción estenozada ha sido removida. La operación fue hecha en siete tiempos. La función resulto perfecta.

RIASSUNTO

Esofagoplastia pretoracica

Un metodo di esofagoplastia è descritto per mezzo di cui ci fù una resezione del nodo scorsoio del diguino, e questo nodo scorsoio e un imbuto formato da tessuto cutaneo furono sostituiti per la porzione stenosata dell'esofago. L'estremità periferica del nodo scorsoio digiunale fù anastomizzato allo stomaco e il nodo scorsoio prossimale, all'imbuto cutaneo; l'estremità prossimale dell'imbuto fù suturato all'esofago dopo che la porzione stenosata fù levata. L'operazione fù fatta in sette stadii. Funzione perfetta risultò.

ANESTHESIA OF THE PHARYNGEAL TONSILS THROUGH THE NASAL CAVITIES

FEDERICO J. MOLAS OLIVERAS, M.D., F.I.C.S.

MEXICO CITY, MEXICO

IN the removal of pharyngeal tonsils, the choice of anesthetic is very important. Some surgeons resort to a general anesthetic despite the occasional bad results from its use in this simple procedure Relaxation and bleeding are the disagreeable accompaniments of general anesthesia in this operation

Some surgeons operate in these conditions without an anesthetic, but it is unpleasant to contemplate such a procedure because of the struggle which ensues between the surgeon and the patient. Loss of confidence is the inevitable result. Cocaine anesthesia offers disadvantages if it is administered through the oral cavity, or by means of insufflations through the nasal chambers, in an attempt to obtain anesthesia by the small amount of anesthetic which reaches the nasopharynx.

The simplicity and efficacy of my own technic at the hands of the specialist and general surgeon for removing pharyngeal tonsils follows:

A probe or cotton applicator, of the kind used by the otolaryngologist, is bent slightly to obtain the curvature of an Ytard's probe, the bent end is wrapped with cotton and dipped in a solution of cocaine (10 per cent), novocaine, pantocaine or other anesthetizing solution The probe is introduced into the widest portion of one of the nasal cavities, determined previously by rhinoscopy Patience must, of course, be exercised with children The patient or the assistant is asked to hold the probe in position, moving it slightly to and fro in order to reach the areas to be anesthetized This procedure is carried out twice, fresh cotton and additional solution being used

This method offers sufficient anesthesia for the performance of the operation and contributes to the confidence of the patient and his parents. Experience has shown that the operation can be more easily and safely performed than by simple digital exploration of the nasopharynx. Hemorrhage is negligible

SUMMARY

The author obtains anesthesia of the pharyngeal tonsils by introducing the anesthetic solution into the widest portion of one of the nasal chambers on a probe, one end of which has been wrapped with cotton.

RÉSUMÉ

Anesthésie des amygdales pharyngiennes par la voie nasale

L'auteur obtient l'anesthesie des amygdales par l'introduction dans la partie la plus large d'une des cavités nasales, d'une sonde dont une des extrémités est entourée de coton imbibé de la solution anesthésique

ZUSAMMENFASSUNG

Anästhesie der Rachenmandeln durch die Nasenhöhle

Der Autor erhalt eine gute Anästhesie der Rachenmandeln durch Einführung des Anasthesiemittels durch den weitesten Teil einer der Nasenhohlen. Die Einführung geschieht mit einer Sonde an derem Ende etwas Watt ist.

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PRETHORACIC ESOPHAGOPLASTY

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IN 1929 I published my first report of a case in which esophagoplasty was performed[1] The patient (Mrs A O) was treated on my service (General Hospital, Ward 19) The series of operations was performed by Dr Dario Fernandez and me Some time ago I had the opportunity to examine this patient and found the esophagus to be functioning well

The following report is an observation of a girl (E P) who was admitted to Ward 24 of the General Hospital Mexico City on June 16, 1938, complaining of dysphagia so marked that she could scarcely ingest liquids

Seven months previously (Dec 7 1937) the patient swallowed a small amount of a concentrated solution of lye this was followed immediately by intense retrosternal pain and regurgitation of bloody mucus mixed with small amounts of buccal and esophageal mucosa Soon after the accident aphagia with total inability to ingest food of any kind appeared lasting however but a few days Improvement was gradual and within a short time normal function of the esophagus had returned The recovery was transitory a month after the ingestion of the lye dysphagia again manifested itself and progressed to the point where she could take only liquids and at times even liquids could not be swallowed During this period she had lost 23 Kg in weight

Marked pallor was present Other organs were found to be normal Roentgenograms showed stricture of the esophagus at the upper portion of the sternum The barium most of which was regurgitated appeared like a thread in the roentgenogram The suprastrictural dilatation was moderate

With the use of the esophagoscope an attempt was made to pass some fine bougies in order to prepare for electrolysis a method of treatment which I usually employ when the stenosis is not overcome by the insertion of dilators Several attempts to pass the bougies failed This coupled with the fact that the patient was poorly nourished made it necessary to resort to surgery It was realized that gastrostomy at least must be performed encouraged by the good results obtained with the previously mentioned patient (Mrs A O) a more radical operation was decided upon after the patient had been told of the possible danger to which she might be subjected

The first stage of the operation was performed July 2 1938 under spinal anesthesia Dr Mario Quinones assisting No primary gastrostomy was performed

A midline supraumbilical laparotomy was made as far as the xiphoid process About 40 cm from the duodenojejunal angle a transverse section of the intestine was made The proximal end was closed with a purse string suture a portion of the catgut suture being left long to be used later for traction Two vascular arches were sectioned an attempt being made to preserve as much mesentery as possible with the loop Care was taken that the most distal portion of the mesentery (the portion included in the purse string) conserved its vitality a condition most essential for good operative results It was estimated that the extremity of this distal loop would reach the level of the fourth left intercostal space close to the midline A side to side anastomosis was done between the stomach and the jejunum (figs 1 and 2) the loop was then removed from the abdomen and passed through a subcutaneous tunnel beginning in the epigastrium and extending as far as the fourth intercostal space where it was fixed in a circular manner through an opening of the skin

The continuity of the digestive tube was preserved by performing a side to end anastomosis between the proximal loop and the jejunum below the gastroduodenal anastomosis previously made The abdominal wall was closed carefully in order not to strangulate the intestinal loop transplanted to the thorax

The following day the purse string suture placed in the prethoracic region was opene [illegible] order to feed the patient Th [illegible] t [illegible] gress was uneventful The [illegible] remained viable

TWO NEW INSTRUMENTS FOR CRANIOTOMY

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THE discovery and study of old skulls presenting bony losses produced with a deliberate therapeutic purpose give evidence that such surgical attempts are indeed very old. It is safe to assume that opening the skull was performed in ancient times by the Egyptians and Greeks as well as by the Peruvians and the Aztecs on the American Continent.

The vestiges of the procedures of those ancient days show that a strange interest moved surgeons to penetrate into the mysteries of the interior of the human skull.

Some remarkable cases are those in which the extent of bony loss is not proportional to the form and extent of other losses; the condition obviously resulted from the healing of a fracture or an osteomyelitis focus. However, with but few exceptions, up to the end of the last century craniotomy was performed solely for the purpose of applying a treatment to the cranial wall, particularly in fractures and probably also in cases of suppurative and neoplastic processes.

In 1889 Wagner started the scientific revolution that is now beginning to play such an important part in the surgery of the world. This consisted in performing a craniotomy with the sole purpose of reaching the nervous tissue contained within the cranial case. Thus surgery of the skull is being transformed from a therapeutic measure with a single purpose into the first step of more extensive operations on the nervous centers. Craniotomy should be to cerebral surgery what laparotomy is to abdominal surgery today.

The walls of the gross cavities of the human body vary as to their tissues and as to their anatomic structure in proportion to the function of the organs contained therein. The abdomen, the receptable of organs in contact with the outside world, is formed by walls composed almost entirely of soft tissues. On the other hand, the thorax, the main organs of which are exposed to the outside world in a finer and more delicate way than are those contained in the abdominal cavity, has a framework formed by bony elements, alternating with soft tissues; thus the intrathoracic organs are protected in proportion to the delicacy of their anatomic structure and especially their function.

The protection of the encephalon by means of a suitable case has been an organic necessity. This bony structure is molded by the brain itself in accordance with the necessities of formation, development and function. The skull is an almost closed case that has but one orifice below and posteriorly—the foramen magnum. The orbits and the cribriform plate of the ethmoid are weak points, but they are protected by their deep situation, so that the content of the brain may be considered to be hermetically enclosed in a bony case so strong that it is capable of offering great resistance to injury.

In the surgery of the skull, two fundamental problems have lacked adequate solution up to the present time: (1) hemostasis and (2) cutting of the bone.

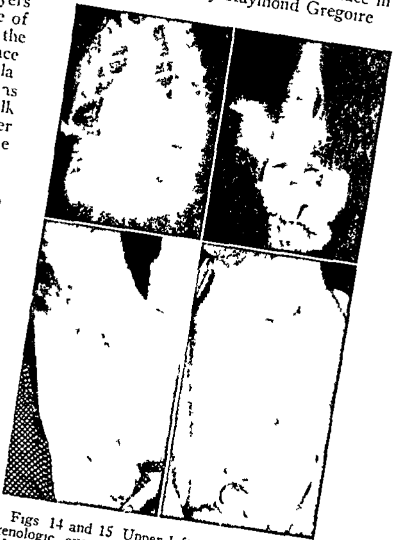
METHODS OF PRODUCING HEMOSTASIS

Various instruments and technics have been employed at different periods, tween the segment of the cervical esophagus attached to the skin and the jejunum, sutured at the level of the left fourth intercostal space (fig 4) Two parallel incisions were made [illegible] cm apart the internal portion of these being dissected for 1 5 cm and the cellulo adipose tissue being conserved in order to leave a pedicle to insure the nutrition of the skin The edges of the flap were sutured in three layers with No 00 catgut The skin on each side of the flap was dissected in order to cover the tunnel created and to leave a smooth surface As the patient was a young girl it was relatively easy to move the skin in such a way as to prevent tension of the sutures A few silk sutures were placed to reinforce the other stitches and prevent the latter from cutting the edges of the wound (fig 5)

Direct communication of the cutaneous tunnel with the cervical esophagus left sutured to the skin or with the jejunum sutured to the precordial region was not established at this time because it was deemed advisable to obtain complete cicatrization of the tunnel before feeding by mouth was permitted The patient was still being fed through a rubber tube placed in the stoma of the jejunum The postoperative recovery was uneventful

On September 14 1939 the cervical esophagus was united with the prethoracic tunnel (figs 6 9) An incision was made parallel to the midline very near to the esophageal orifice and of sufficient length to include the latter and the orifice of the cutaneous tunnel an incision of the same size as the previous one was made to the right of these orifices and a little further from them than the first incision Two transverse incisions were then made at the upper and lower limits of the first two incisions a small quadrangle being formed the left border of the right incision was moderately detached with a greater detachment of the right border of the left incision in order to detach a flap of skin which after its edges were approximated would enclose in its cavity the orifices of the cervical esophagus and the cutaneous tunnel A small fistula was present for a few days but this soon healed and complete cicatrization was obtained The communication between the cervical esophagus and the tunnel was thus assured

On October 18 1939 another plastic operation was performed to establish the communication between the cutaneous tunnel and the jejunum (figs 10 13) This was done in two stages first a rectangular flap was obtained by naking two horizontal incisions the orifices being included between them The incisions were 3 or 4 cm in length and were made to nd in points being folded in two (figs 10 and 11) The edges of the raw surface we sutured after approximation of its edge Later the flap was divided vertically its lef border was sutured to the opposite one and thus another small tunnel was formed the right flap was used to cover the raw surface in the manner described by Raymond Gregoire



Figs 14 and 15 Upper left and right Roentgenologic examination made after completion of plastic procedures showed normal emptying time of stomach

Fig 16 Lower left Scar produced by esophagoplasty performed on Mrs A O in 1929 Esophagus still functions well

Fig 17 Lower right Scar produced by esophagoplasty performed on 17 year old girl (E P)

About the middle of November 1939 the plastic procedures were completed Radiologic examination showed that barium ingested by mouth left the stomach in normal time (figs 14 and 15)

During the time that the communication between the jejunum and the cutaneous tunnel was being established the patient was fed through a tube inserted through the nose

At the time of this writing the esophagoplasty was complete with the exception of the repair of the portion covering the jejunum

A similar operation, performed on another patient previous to the one herein

In this manner it is possible to obtain good and lasting hemostasis, started by the infiltration of the anesthetic, continued by the pressure of the fingers and maintained by the pressure of the Kelly forceps on the edge of the skin and the pericranium. The procedure has the disadvantages of being tiresome and of requiring a large number of forceps. The surgeon may tie them in bundles of eight or ten and make four, five or six such bundles; he should arrange the bundles carefully so that they will not interfere with the operation.

More recently, Adson modified the pincers originally devised by Andrews and turned the instrument into a small metallic frame which, when folded in the middle, one edge opposing the other, forms a U which embraces the entire thickness of the soft tissues and is maintained in place by means of teeth very similar to those of Mitchel's pincers. The placing of this device requires the same procedure formerly described, that is, the surgeon cuts a section previously pressed by his assistants, who pull the edge towards them and then lift it slightly so that the surgeon may grasp it with the aid of an indented forceps. Finally, with the aid of the pincers fixed on a large, strong forceps, which he uses with his free hand, the surgeon grasps the entire edge of the cutaneous incision.

The necessity of making the incision before placing the forceps, no matter how good the pressure executed by the assistants may be, implies the presence of a small amount of blood; a larger amount of blood is present when local anesthesia has not previously been given. As the pincers are made of metal, the initial pressure of the forceps upon it is, in many cases, found to be insufficient for sustaining the compression of the edge, so that, with the release of the forceps, the pincers open slightly. It is then necessary to stop the bleeding of some vessel lying between the two branches of the U. The pincers must be placed close to each other in order to surround the edges of the incision on the scalp. Naturally a large number of these is required for a large incision.

Hemorrhage of the diploë, though never equal to the hemorrhage of the scalp, is important, however, especially since it causes considerable inconvenience during the operation.

Hemorrhage of the diploë which occurs during the cutting of the bone with a Gigli saw, before the dependent part has been raised and fractured, cannot be stopped because the vessels remain open within the wound itself and because the space between the cut edges is so narrow that they are inaccessible. Hemostasis is possible only when the dependent bone has been fractured and removed. If there is considerable hemorrhage, speed in operating helps to solve the problem.

In addition to certain procedures now in disuse, such as the application of the Krause metallic hooks, is the fairly recent practice of inserting small pieces of muscular tissue into the diploic spaces by means of a fine stiletto, or even a simple hypodermic needle.

Many other methods have been discarded. Sometimes the mere separation of the vessel from the osseous wall with the edge of the needle was found to be sufficient to obtain complete stoppage of bleeding. Another method was the introduction of small spikes of ivory or of decalcified bone into the blood vessel to obstruct the passage. In order to diminish the oozing of blood which takes place at those points where the vessels are invisible to the naked eye, a few gentle strokes with the chisel are sufficient to sink the diploic layer slightly and to obstruct the passage with the tiny fragments of bone produced by the chisel strokes, thus facilitating the coagulation of blood issuing from the small vessels.

These methods have been superceded by the use of Horsley's aseptic wax which efficiently stops hemorrhage of the diploë. If bleeding occurs from every

ANESTHESIA IN MEXICO DURING THE NINETEENTH CENTURY

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THE progress of anesthesia is so closely allied with the progress of surgery that its development in Mexico is well worth recording In tracing its progress the writer has searched all available literature for articles on the subject including students' theses, medical publications and reviews of scientific societies The first portion of the results of this record appeared in the form of a summary in the *Gaceta Medica de Mexico* the official organ of the National Academy of Medicine (Vol XIX Nos 3 and 4), and in a subsequent number of this publication the final portion will appear Later a complete bibliography of the national literature on the subject to the present date will be published in a single volume By consulting this series of papers or this book one may find any desired reference on anesthesia in Mexico

A very short period of time intervened between the discovery of the first anesthetic substances and their use in this country Dr Martinez del Rio was the first to administer ether and chloroform in Mexico Subsequently, chloroform was preferred and most of the literature compiled referred to it Dr del Rio called attention nevertheless to the fact that despite the crude method of administering chloroform (dropping bottle and a strip of gauze) and despite its many impurities few fatal accidents occurred The anesthetist was thus confident of his work and as a result, many years elapsed before care was recommended in the use of chloroform

The early record of complications which developed following surgery did not differentiate between those caused by the anesthetic per se and those caused by the surgical intervention and thus the responsibility of either the anesthetic or the surgical operation was not defined or established It was not until later that a distinction was made and fatalities ascribed to definite causes

In this paper attention is called to the first use of ether in rectal anesthesia (1884), the use of cocaine as a local anesthetic (1895) several administrations of anesthesia in obstetrics and a few facts regarding the use of nitrous oxide

Rather than make a transcription of the summaries of the original articles, the writer has chosen to indicate the advancement in anesthesia in Mexico by presenting the bibliography in chronologic order

De la anestesia y su aplicación al parto (Tesis) Dr Lorenzo M Ortega 1869 Coleccion de Tesis de la Escuela N de Medicina

Aplicacion del cloroformo durante el trabajo de parto Dr Angel Contreras El Porvenir organo de la Sociedad Filoiatrica y de Beneficencia de los alumnos de la Escuela de Medicina T I No 11 Noviembre de 1869

Sobre la acción del cloroformo Dr Juan Cabral En el mismo periodico tomo y numero que el anterior

Estudio sobre el cloroformo Luis Pauer Tesis 1870 Colección de tesis de la Escuela N de Medicina

Cloroformo y sus indicaciones Dr Juan Rodriguez Tesis 1872 Coleccion de tesis de la Escuela N de Medicina years no one has paid any attention to the problems of hemostasis in craniotomy and to the most effective methods of cutting the bone.

After experimenting for a period of four years with instruments and systems, my associates and I believe that we have solved the first problem, at least, and that we have partly solved the second problem. This is accomplished with instruments adapted to this purpose. In the majority of our cases, these instruments have been very successful. Hemostasis of the diploë is accomplished by the bone cutting instrument.

INSTRUMENTS AND TECHNIC FOR HEMOSTASIS OF SCALP

Hemostasis is obtained through the combination of the infiltration of the solution used for local anesthesia (one-half per cent; adrenalin in most cases) and the compression rendered by the instrument shown in Figs. 1-3.

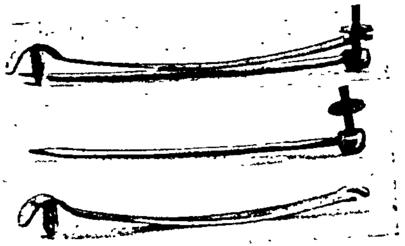
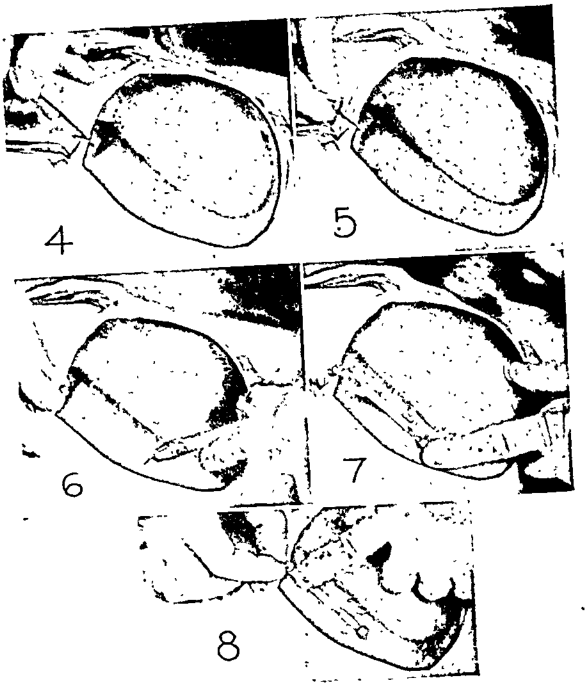


Fig 1. Above, hemostatic compressor. Fig. 2. Center, needle of hemostatic compressor, 7.5 cm. long, triangular in shape, each side of triangle being 1.5 mm. wide; end of needle is sharp and slightly curved; nut on screw at opposite end is not removable.
Fig. 3. Below, steel plate, tempered as a spring; semicircular end protects point of needle, which is inserted into one of the holes.

The instrument is composed of a needle (fig. 2) and a steel plate (fig. 3). The needle is 7.5 cm. long, triangular in shape (for ease of insertion into the skin) with each side measuring 1.5 mm. and sharpened at one end like the sharp end of a sword but curved towards the end. The other end is provided with a small piece of metal on which is placed a screw that forms a right angle with the needle. A small nut which cannot drop off is attached to the screw. The length of the needle conforms to the length of a tangent that can be placed over any of the curvatures of the skull along an extension varying from 4 to 6.5 cm. The sharpness of the end of the needle permits it to glide over the bony plane and prevents it from emerging through the skin before it has reached the desired point.

In order to make the needle emerge through the skin, one must rotate it with the screw one quarter of a turn, thus making the screw straight. This operation brings it to a vertical position over the surface of the scalp. If the sharp end of the needle does not penetrate the scalp spontaneously, the skin should be pressed at the point where it is to perforate the skin from inside out; the needle should then be pushed through the soft tissues. With the line for the incision marked along the anesthetized area, the needles are introduced, approximately 1 or 1.5 cm. outside the line, each needle being given a slight inclination in the direction opposite to that which they are to follow under the skin. When it touches the bone, the needle is pushed in the desired direction by maintaining the screw inclined on one side, so that it crosses the necessary extension in a line parallel



Figs. 4 and 5. Line of incision has been marked on scalp; needle is thrust between scalp and skull for a distance of 4 to 6.5 cm.
Fig. 6. At place of emergence through skin, needle point is inserted in hole of metal bar. Fig. 7. Slot at opposite end of bar is slipped over screw on end of needle.
Fig. 8. Pressure is exerted on bar with finger of one hand and screw is tightened with other hand.

lección de tesis de la Escuela N de Medicina

El protóxido de ázoe como anestésico Dr Juan Falero La Escuela de Medicina T XIV No 21 lo de agosto de 1898

Apuntes sobre los accidentes de la cloroformización Dr A Ruíz Erdozain Revista Médica T V No 10 lo de septiembre de 1892

Anestesia local por el frío en la operación de la fimosis El observador Médico T III No 10 lo de diciembre de 1874

De las causas de la muerte por el cloroformo Dr José M Bandera Gaceta Médica T XXXVI No 3 lo de febrero de 1899

SUMMARY

The author presents, by means of a bibliography arranged in chronological order, the development of anesthesia in Mexico from its inception to the end of the nineteenth century

RESUMÉ

L'anesthésie au Mexique durant dix-neuvième siècle

L'auteur nous présente, au moyen d'une bibliographie arrangée en ordre chronologique, le développement de l'anesthésie au Mexique, jusqu'a la fin du dix-neuvième siècle Dans une publication ultérieure, cette bibliographie sera amenee a nos jours Un livre renfermant tous ces renseignements sera publié

ZUSAMMENFASSUNG

Anasthesie in Mexiko wahrend des neunzehnten Jahrhunderts

Verfasser bringt mittelst eines chronologisch angefuhrten Literatur-verzeichnisses die Entwicklung der Anasthesis in Mexiko bis zum Ende des neunzehnten Jahrhunderts In einem spatern Aufsatze soll die Bibliographie bis zur Gegenwart weitergefuhrt werden Dieses Material soll dann in Buchform veroffentlicht werden

SUMARIO

Anestesia en Méjico durante el siglo XIX

El autor presenta, por medio de una agrupación bibliografica en orden cronológico, el desenvolvimiento de la anestesia en Mejico hasta la terminación del Siglo XIX En un artículo subsecuente la bibliografía sera completada hasta la presente fecha

RIASSUNTO

L'anestesia nel Messico durante il secolo decimo nono

L'autore presenta, mediante una bibliografia arrangiata in ordine cronologico, lo sviluppo dell'anestesia nel Messico sino al fine del diciannovesimo secolo In un articolo susseguente la bibliografia sarà finita ad attualità Questo materiale sara poi pubblicato in forma di libro

* * *

REMITTANCES FOR DUES CHECKS SHOULD BE MADE OUT TO DR. BENJAMIN I GOLDEN, TREASURER, AND MAILED TO MR RALPH E OSBORNE, BUSINESS SECRETARY, 2543 PARKWOOD AVE, TOLEDO, OHIO.

tightens it by means of a spring, thus fastening the case at the opposite end (fig. 12).

The specially carved lathe is 1.4 cm. long and has a diameter of 1.7 mm. The lathe is provided with one longitudinal carving and another one in a spiral, extending from left to right. The intersection of the two carvings results in the formation of small teeth directed to the left, so that the rotation of the saw to the left causes friction between each row of teeth and the bony matter with which they come in contact. Inasmuch as these teeth are very fine, the cutting is done by a gnawing action. In this manner the cutting produces a very fine dust of bone that is projected out of the space between one edge of the cut and the other, by the very movement of the spiral contrary to the rotary direction.

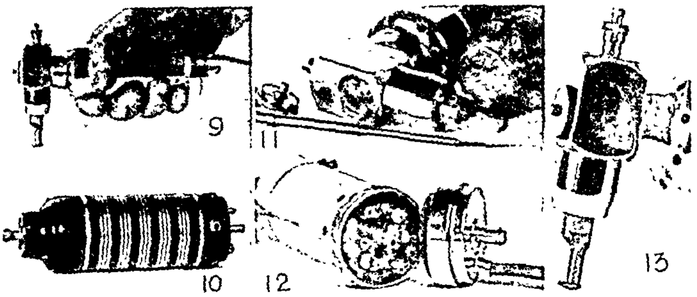


Fig. 9. Instrument for cutting skull. Fig. 10. A small conic gear with 12 teeth was attached to one end of axle and adjusted to a second conic gear of 24 teeth.

Fig. 11. Metallic case, perforated to assure ventilation, in which motor is lodged, and second case, which is adjusted to one end of metallic case and which contains a larger axle perpendicular to the former; inside second case are mounted two ball bearings that support a hollow axle to which the 24-toothed gear is adjusted. Fig. 12. Introduction of motor into case causes the small gear to adjust automatically to the bigger one; a screw cap that carries the connections of the motor tightens it by means of a spring, thus fastening the case at the opposite end.

Fig. 13. Lathe is provided with longitudinal and spiral carvings, the intersection of the two carvings resulting in the formation of small teeth, directed to the left. "Skate" is lowermost portion of the instrument against which pivot of cutter rests: "skate guide" is portion which maintains the skate in adjustment with the remainder of the apparatus.

It has been possible to use this small motor because the gnawing is done by very small teeth. In De Martel's apparatus, the cutter of which has no teeth, more power is required on the part of the motor as well as the surgeon than with an instrument which gnaws as it cuts. Furthermore, with the instrument herein described, the cut is made quite rapidly due to the great speed of the cutter.

At its lower part, the cutter ends in a pivot which leans against a small cushion set up on an even and oval piece having thin and blunt edges. This piece is the continuation of a plate which protrudes from the case containing the movement of the gears.

This little piece containing the small cushion against which the pivot of the cutter leans is the *skate*. The small plate which maintains the skate in adjustment to the remainder of the apparatus is the *skate-guide*. Upon maintaining the body of the apparatus in a horizontal position, the skate-guide remains in a vertical position parallel to the cutter. This latter shows only its carved part intended for cutting (fig. 13).

The hollow axle protrudes from the upper part of the case. The cutting some of which are still in use. Hemostatis in craniotomy is of especial importance to both the scalp and the bone. Hemorrhage can usually be stopped except in hairy skins. The difficulty encountered in hairy skins is due to peripheral vascularization. Many kinds of compressive forceps designed to stop hemorrhage have been used unsuccessfully.

The need for better methods of producing hemostasis resulted in the construction of a special type of forceps to be used on hairy skin. Among those who devised such forceps were Krause, Nicholson, Howzel and Chipault.

Heidenheim, in an attempt to produce hemostasis, placed a suture in successive semicircles along two parallel lines, at a distance of one and one half or two centimeters from each other, between which the skin was to be incised. This long suture required much time and effort, and yet it did not prove entirely satisfactory. Crile advised temporary compression of the carotid vessel, a method which is both difficult and dangerous, for the vessels of the opposite side continue to bleed more or less abundantly.

More recently Cushing, the father of craniocerebral surgery on the American Continent, devised an elastic ring to be placed around the head at the level of the glabella and the suboccipital region. The ring has a ribbon attached to its anterior and posterior sides, which passes along the middle of the skull following the metopic suture and prevents it from slipping down over the eyes. Cushing admitted that the device did not obtain good hemostasis because of the incomplete circular compression and the communications of the endocranial circulation with the scalp.

The Allis forceps which have a small pin at one end and a flat plate at the other, are unsatisfactory because the two ends form an acute angle with the result that greater compression is produced on the part of the angle near the articulation than on the part corresponding to the sharp end of the forceps. Frequently this compression has caused serious crushing of the skin, while the points near the ends of the forceps continued to bleed.

Other types of forceps similar to the Allis forceps and operated by a spring have failed to give uniformly good results.

Local anesthesia is proving to be a powerful auxiliary to the production of hemostasis of the scalp, even without a vessel constrictor, for it operates by the compression resulting from infiltration into the tight network of the subcutaneous fat tissue of the scalp.

In this way it is possible to make an absolutely bloodless incision. However, because of the fact that a considerable amount of time elapses before the tissues are sutured, the anesthetic loses its effect, hemostasis ceases and the hemorrhage begins after a while, increasing with the passage of time.

The problem then is to maintain hemostasis during the time required for the tedious cerebral operation. Hence the idea of surrounding the edges of the wound with Kelly's forceps was originated. This proved useful and efficient. Two assistants one standing by the side of the surgeon and the other opposite him, should compress the scalp, their fingers close to the line of the incision. After the local anesthesic is infiltrated the surgeon incises the scalp down to the pericranium and starts placing the Kelly forceps on the pericranium itself along the external edge of the incision, each forceps at a distance of approximately 1 cm along the entire length of the wound. The forceps grasps the pericranium and is turned outward from the incision thus lying on the edge and consequently compressing it. As for the internal edge, as many forceps as necessary are used.

The motor, which is not aseptic, must remain enclosed within the cover, and the small gear which comes in contact with the large gear remains outside the metallic tube through the hollow interior of which the cutting instrument passes. The latter is perfectly isolated from the cases containing the gears, where the nonaseptic motor comes in contact with the aseptic external portion of the hollow axle.

The size and the weight of the apparatus make it extremely handy. With this instrument it is not necessary to make more than one trepan hole. From this single aperture the craniotome can follow any sharp curve or move in any desired direction.

The skate protects the meninges and separates them from any possible adhesions. This is probably obtained with this apparatus as easily as with any of the other instruments used for this purpose.

A beveled edge can be obtained by inclining the instrument, at least in places where the bony wall is not too thick and the opening is sufficiently small.

Finally, the cutter, due to the speed at which it rotates, produces bone dust which is introduced by the centrifugal force of the cutter into the small holes of the diploic ducts. Almost perfect hemostasis is the result. Only the cutting of a vessel of considerable caliber would cause free bleeding. If this occurs, it is usually sufficient to apply the cutter once more to the bleeding point to stop hemorrhage. However, should this fail, the proper thing to do is to use any of the known means described previously in this article.

The accompanying illustrations (figs. 14-25) depict the various steps in performing a craniotomy with these instruments.

During the last several years, we have performed nearly every type of craniotomy or craniectomy. In craniectomy, we do not leave a bony portion to be removed by fracturing, for we can cut a circular, oval, square or triangular area, without the necessity of subsequent fracture and the production of dangerous chips.

For the proper functioning of the apparatus, the constant lubrication of the cutter is imperative. An assistant should apply a jet of salt solution of 39° over the line of cutting. This prevents the dust from drying due to the rise in temperature from friction and to the accumulation of dust between the teeth.

SUMMARY

The author describes an instrument which he has devised for performing craniotomy and his method of producing hemostasis of the scalp and the diploë. With this instrument the surgeon is able to cut from the skull a circular, oval, square or triangular area. Hemostasis of the scalp is obtained by inserting needles outside the incision, each needle being held firmly by a metal plate. Hemostasis of the diploë is secured by the bone dust produced by cutting the bone. Results from using these devices in the General Hospital, Mexico City, for three years have been satisfactory.

RÉSUMÉ

Un nouvel instrument pour la craniotomie

L'auteur décrit un instrument qu'il a inventé pour la craniotomie et sa méthode pour assurer l'hémostase du cuir chevelu et du diploë. A l'aide de cet instrument il peut élever un lambeau cranien cerculaire, triangulaire, carré ou ovale. L'hémostase du cuir chevelu est assurée à l'aide d'aiguilles placées au-delà des bords de l'incision et maintenues en place à l'aide de champ. L'hémostase du diploë est assurée par la poussière d'os produite par la section de l'os. Cet appareil est employé à Mexico depuis

point of the external cut of the bone, the wax must be applied over the entire surface.

METHODS OF CUTTING BONE

The second problem, that of the cutting the bone, is a vital one. Wagner in 1889 used a hammer and chisel for craniotomy, a procedure that was objected to because of the danger of producing cerebral concussion. In fact, operations performed with this method resulted in a high mortality. Toison in 1891 used for this operation a chain saw which he introduced into one trepan hole, allowing the other end to emerge through another hole placed at a convenient distance. Alternating movements given to the saw by two handles fixed at the ends cut through the section of bone between the trepan holes.

Obalinsky in 1897 preferred the Gigli saw, which was manufactured that same year for obstetrical purposes. His procedure, with a slight modification in the instrument, has been used up to the present time by surgeons who operate on skulls.

The usual procedure in North America is to make several trepan holes along the proposed line of the cut and to introduce the Gigli saw into one hole and allow it to emerge through another, with the aid of a conductor plate fashioned after Marion's model. The number of trepan holes varies with the length of the opening. When in use, the saw has the shape of the chord of an arc and thus it is likely to injure the meninges. To prevent this, two conductor plates are used in such a way that when one plate is removed with the forward movement of the saw, the other plate remains in contact with the dura mater, and in this way the alternating movements of the saw cause no damage. The cutting is completed with the de Vilbiss cutting forceps, which are used to remove small fragments of bone.

De Martel devised an electric automatic lathe and a vertical cutter of helicoidal shape which made a cut from four to five millimeters wide. It was provided with a meningeal protector. Both the lathe and the cutter were driven by an electric motor.

Cushing preferred the earlier methods which, although slower than those requiring the use of the new instruments, are less dangerous in his opinion. He cut the bone between two trepan holes, advancing from one primary aperture only. The cut was made from inside out and in such a way as to obtain beveled edges, so that the replaced bone would not sink into the opening made by craniotomy. He used a lathe attached to a wimble to bore the trepan holes and cut the bone between the holes with a Gigli saw. By giving the saw the proper tilt, he produced a beveled edge to the bone. At the extreme ends of the cut he used the Dahlgren instead of the de Vilbiss forceps.

Similar technics have been used by other North American surgeons, such as Adson, Loyal Davis, Dandy, Freeman and Sachs. Verbrugghen uses a device consisting of a large, strong lever attached by one end to a pivot which, in turn, is inserted into a trepan hole in the center of a circle, along the circumference of which the cut was to be made. The lever is equipped with a knife which, rotating around the pivot, cut a circle of bone. This instrument is quite useful, although it requires effort and exertion.

In Europe, excepting for De Martel, who uses his own instruments, surgeons employ the same technic used by the surgeons of North and South America. The imperfections in the technic of craniotomy have been forgotten because of the interest in endocranial work, chiefly as a result of the progress made by neurology and neuropsychiatry and the analysis of clinical phenomena localized in the functional zones. For 15

SOME CONSIDERATIONS ON SPINAL ANESTHESIA

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CORNING was first to conceive the idea of injecting analgesic substances into the spinal canal. Quincke developed the idea of lumbar puncture and its technic, while Bier was first to apply it in humans. Subsequently, Tuffier, Chaput, Doleris and many others adopted the procedure. Because of its harmlessness to the general system, spinal anesthesia has become popular. It is indicated when other methods of anesthesia are contraindicated because of certain dangers. It is often used for a great number of operations upon the lower half of the body.

Various preparations have been used, such as cocaine, stovain, percaine, novocaine, scurocain and combination preparations, such as stovain-strychnine. Used as chemically pure salts, they are dissolved directly in the cerebrospinal fluid. The injection is made into the spinal canal at different levels, the use of the procedure being possible even for operations upon the arms and the head.

To obtain anesthesia at a higher level, injection of the fluid at higher levels is recommended, even up to the space between the atlas and the occipital bone. In order to obtain anesthesia of the head, it is advisable to use a very dilute solution of eucain, producing at the same time mild hyperemia of the cephalic blood vessels by means of a slightly constricted band placed around the neck.

GENERAL ANESTHESIA

High spinal punctures and all technics attempting to attain total analgesia are always dangerous. With other means of obtaining the same results it is unwise to run the great risk which accompanies such procedures.

Generally speaking, spinal anesthesia is a block anesthesia, but if one resorts to its use for general anesthesia, one should employ the Koster technic, injecting 0.2 or 0.25 cc. of novocaine into the spinal canal at the selected site, with the patient in a semi-Trendelenburg position. Sufficient anesthesia can be obtained for operations on the neck, head and upper limbs. Nevertheless, as emphasized, *the method is a dangerous one, despite meticulous preoperative care.*

ANATOMIC CONSIDERATIONS

Block anesthesia has its own definite indications. It is necessary that the field of operation be within the nerve area to be desensitized. In the lumbar portion of the spine the nerves whose paths are to be blocked are those forming the cauda equina. These nerves emerge through the lumbar intervertebral spaces. But as the Quincke puncture is made, not at the junction of the last dorsal and first lumbar vertebrae, but between the fourth and fifth lumbar vertebrae, the nerves affected in the majority of cases are those beginning with the fourth median lumbar nerve. By practicing "barbotage," it is possible to infiltrate the first lumbar root.

The anterior branches of the first four lumbar and the first four sacral nerves constitute the sacral plexus. The anterior branches of the fourth and fifth sacral, with the coccygeal, form the coccygeal plexuses. Therefore, as a rule, in lumbar anesthesia only the sacral and coccygeal plexuses are desensitized, and only by means of "barbotage" is the lumbar plexus reached.

The distribution of the nerves comprising the cauda equina to the cutaneous to the proposed incision and the plane of the bone This is obtained by varying the first position adopted to pierce the skin and giving the needle an inclination until it is parallel to the bony plane

Since the needle has been introduced between the bone and the soft tissues, and since it embraces an area from 4 to 6 cm in length between its entrance and its emergence, the second part of the instrument will compress at the desired pressure the entire thickness of the scalp

The steel plate (fig 3) is tempered as a spring At one end it is semicircular in shape from the inside of this semicircle extends a small piece also like a plate more or less perpendicular to the body of the main plate This small piece is provided with two small holes placed vertically one under the other

The sharp end of the needle is adjusted to these holes which are 2 mm apart and it is thus lodged in the semicircular curvature This is to avoid accidental pricking The other end has the shape of a wheel 6 mm in diameter and is provided with a slot at right angles to the main plate The screw is adjusted to the slot and the nut rests on that end When this end is pressed with the forefinger of one hand and at the same time the nut is lowered with the other hand, the plate is fixed in the desired position

All the needles of the instrument are introduced at the previously indicated distance so as to surround the entire contour of the incision including the base of the dependent soft tissue

Figs 4 8 indicate the different stages of the introduction of these small needles These instruments permit one to make after their insertion an incision down to the bone with one stroke of the scalpel The instrument has been named the *hemostatic scalp compressor*

Thus hemostasis, started by the local anesthetic is continued and maintained during the operation by means of this instrument Hemostasis is usually complete Sometimes slight bleeding occurs at the time of the cutting This is merely the oozing of the blood which remains stagnant after the hemostatic compressors are placed in position it stops entirely as soon as the blood has been absorbed with gauze

With a little practice seven or eight compressors — enough to surround a fairly large zone — can be inserted in from 4 to 5 minutes Once in place, they need no further attention

The instrument is sterilized in a fatty substance in the autoclave Thus the sharp ends of the needles remain undamaged and the temperature of 123° of the autoclave does not affect the metal, which would certainly happen if the fatty substance were boiled at a temperature of 280°

INSTRUMENTS AND TECHNIC FOR CUTTING BONE AND HEMOSTASIS OF DIPLOE

After many modifications we have finally adopted the craniotome here described Although we believe that still greater efficiency can be obtained, this instrument is a good one and it has given satisfactory results in most cases Originally it was an adaptation of De Martel's instrument, but many modifications have now been made, especially of the cutter It is driven by a small electric motor which produces 25,000 revolutions per minute The manufacturers advertise is as the motor of one thousand and one applications We believe that it has added one more application to its list

By adapting a small conical gear of 12 teeth attached to one end of the axle and adjusting it to a second conical gear of 24 teeth the rotating movement was changed from right to left in addition its rate of speed was reduced by half and its power was doubled (fig 10)

The motor is lodged in a metallic case of very thin walls perforated to assure ventilation and to avoid overheating of the motor Another case, adjusted to one end of the metallic case contains a larger axle perpendicular to the former Inside this second case are mounted two ball bearings that support a hollow axle to which the twenty-four toothed gear is adjusted (fig 11) With the introduction of the motor into the case, the small gear automatically becomes adjusted to the larger one A screw cap that carries the connection [illegible] correct. The uterus does not derive its nerve supply from either the lumbar or the sacral plexus, those directly infiltrated by the anesthetic. The location of the principal lower medullary centers is as follows: The anal center is at the lower end of the cord, while just above it is the bladder center; the genital center is near the middle of the spinal cord; there are numerous vasomotor and hair erecting centers all along the spinal cord. Therefore, the use of spinal anesthesia is advisable in deliveries by forceps, version and cesarean section. The uterine musculature retains its tonicity. This method of anesthesia has, at the same time, the advantage of obtaining relaxation of perineal muscles—a very important factor during delivery.

Anesthetic. The selection of the preparation used for the anesthetic must be considered. When a high operation is to be performed, percaine should be chosen, while the less diffusible novocaine is to be preferred when analgesia at a lower level is desired.

CONTRAINDICATIONS

The possibility of producing general anesthesia or of injuring the cord contraindicates the use of spinal anesthesia in children, who are very sensitive to all forms of medication, and especially to anesthetics. Advanced age is usually a contraindication to spinal anesthesia because of nervous irritability, faulty elimination and certain organic lesions, such as arteriosclerosis.

Spinal anesthesia is contraindicated in patients suffering from severe lesions or systemic infections, when the cardiovascular and nervous systems are severely affected, and especially in pyemia, where infection of the meninges may result.

ADMINISTRATION

Enemas should not be given preceding the operation, especially when operating on the perineum, because of sphincter relaxation during anesthesia. When no special contraindication is present, the patient may have a cup of coffee or a glass of milk for breakfast.

Morphine for sedation should be given an hour before the operation, while caffeine, sparteine-strychnine, or ephedrin should be administered a little before the operation to counteract cardiac depression in spinal anesthesia. Despite this preoperative care there is a slowing of the pulse rate in the first 10 or 15 minutes, which later becomes normal after the anesthesia diminishes. Prolonged action of the spinal anesthetic on the nerves of the heart leads to the thought that other nerves besides those of the cauda equina have been affected. Actually, the anesthetic becomes diluted in the cerebrospinal fluid and affects the whole nervous system in more or less the same degree. Because of this, various symptoms, such as vomiting, pallor, bradycardia, syncope, rhachialgia, paralysis and retention of urine appear. Their explanation is found in the action of the anesthetic upon the respective nervous centers.

The technic of lumbar puncture is too well known to be here repeated. The importance of using only those substances which are least noxious to the nervous system must be stressed. At present preparations which are diffusible even in high concentrations are used because they are more constant in their action, less toxic and easily eliminated, qualities possessed by novocaine and percaine.

In the use of spinal anesthesia, strict indications and contraindications should be evaluated. One must bear in mind that it is a genuine block anesthesia. Novocaine dissolved in cerebrospinal fluid is the preparation of choice.

SUMMARY

Contraindications and indications for the use of spinal anesthesia are presented, based on the site of the operation and the condition of the patient. It instrument can be replaced or removed through the axle without dismounting the entire apparatus, it is necessary merely to remove the nut, withdraw the handle of the cutter, introduce the new *one into the hollow axle and fix it again* by means of the nut (figs 12 and 13)

The apparatus itself can be thoroughly sterilized This is accomplished by removing the motor The cap must be sterilized in boiling water to assure conservation of the fibrous part that carries the motor connections, together with the rubber cover and the electric wire *contact It is preferable however, to* sterilize both the cover and the cutting instrument in liquid vaseline in the autoclave

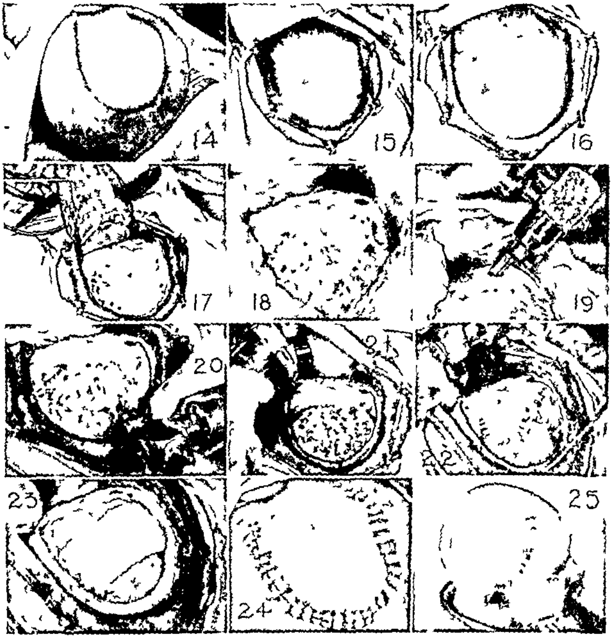

Fig 14 Local anesthesia has been obtained and incision line traced by superficial cutting of skin Fig 15 Hemostatic compressors circumscribing the future flap in position about 1 cm outside the line of incision Fig 16 Incision of scalp has been performed in a single cut down to the bone

Fig 17 Skin flap with underlying tissue pulled upwards leaving bony surface exposed Fig 18 Skin edges as well as flap are protected with compresses kept moist by physiologic salt solution A single trepan hole has been drilled in the bone Fig 19 Introduction of shoe shaped skate guide through trepan hole pushing back the dura

Figs 20 and 21 Portions of the incised area Fig 22 First cutting is finished and another cutting starting from trepan hole is being made in the direction of termination point of first cutting

Fig 23 Beveled edge of bone can be seen Fig 24 Hemostatic suture as well as suture joining both skin edges being finished hemostatic compressors have been removed Fig 25 Cutaneous scar 11 days after extensive craniotomy for removal of brain tumor

A NEW TECHNIC FOR ARTHRORISIS FOR PARALYTIC TALIPES EQUINUS IN ADULTS

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THE frequency of the problem of stabilization of the paralytic foot led Dr. Farill to develop a modified type of arthrorisis, the technic of which is herein described.

Dr. Farill and I have operated on only six cases with this method and sufficient time has not passed for final deductions to be made as to clinical and remote results.

The procedure is carried out in adult patients with paralytic talipes equinus, in whom the strength of the gastrocnemius muscle is conserved, and consists essentially of the following: (1) anteroposterior and lateral stabilization by means of triple arthrodesis (astragalocalcaneus, astragaloscaphoid, calcanocuboid); (2) limitation of anteroposterior movement to the required degree by means of arthrorisis (posterior).

TECHNIC

Spinal anesthesia is used, as a rule; puncture is made between the fourth and fifth lumbar vertebrae and novocaine (0.1 to 1.5 gm. dissolved in 4 to 5 cc. of cerebrospinal fluid) is injected. Any diffusible stimulant, cardiotonic and hypertensive, is injected intramuscularly. Blood is expelled from the limb to be operated upon by gravity, light massage and the application of an elastic rubber constrictor.

The operative field is prepared with tincture of iodine, alcohol and ether. The patient is placed in lateral decubitus. The foot and leg as far as the malleolus are protected by the usual draping method.

The instruments needed are the usual ones employed in general and bone surgery.

An external lateral incision is made, beginning a little below and posterior to the fibula and extending to a point one or two centimeters anterior to the outer borders of the tendons of the extensor longus digitorum. This incision is slightly concave towards the fibula and divides the skin, subcutaneous tissue and dorsal fascia (fig. 1).

By means of hooks the skin and tendons are retracted towards the internal border of the foot and downward. At this point a step from Dr. Lowman's technic is used: A thin, osteoperiostial flap is cut with a wide chisel at the level of the head of the astragalus and scaphoid, parallel to the external surface of the foot, the interarticular lines between the astragalus and the scaphoid, the calcaneus and the cuboid and the astragalus being exposed (fig. 2).

With a narrow chisel, the head of the astragalus, the cartilage of the posterior surface of the scaphoid, the anterior articular surface of the calcaneus and the posterior articular surface of the cuboid are sectioned in the direction marked by the dotted line. Likewise, two parallel cuts are made: A thin layer is sectioned from the lower surface of the astragalus and another, from the upper surface of the calcaneus, in such a way that their surfaces coincide exactly (fig. 4).

The head of the astragalus is freed from cartilage and is then cut in small pieces which are kept temporarily in a small amount of warm normal saline solution.

The patient is now changed to the ventral position and an incision seven centimeters long is made the length of the inner border of the tendo Achillis, beginning with its insertion in the calcaneus. The tendon is retracted outward, without touching its sheath, some of its fat being retained, and the posterior surface of the tibia is exposed (fig. 5).

With either a chisel or a saw a graft measuring four centimeters long and one centimeter wide is taken from the tibia as shown in Fig. 5. This graft is shoved downward, inward to the astragalus and toward the calcaneus, just enough to serve as a buffer and to limit the anteroposterior movements as much as is desired. The graft is sutured to the tibia with kangaroo-tendon, and the hollow space left by the chiseled graft is filled with the small pieces of bone from the head of the astragalus which were previously placed in normal saline solution (figs. 6 and 7).

The wound is closed by suturing in layers; a sterile dressing and a bandage are applied to maintain the proper position (90 degrees in men, a little more in women), followed by a plaster bandage or splint, the knee flexed at 120 degrees being included.

trois ans et a donné des résultats satisfaisants.

ZUSAMMENFASSUNG

Ein neuses Instrument fur Kraniotomie

Verfasser beschreibt ein von ihm erfundenes Instrument fur Kraniotomie und seine Methode der Blutstillung im Perikranium und Diploe. Mit diesem Instrument vermag er runde, ovale, viereckige oder dreieckige Stucke aus dem Schadel zu schneiden. Blustillung im Perikranium wird erzielt durch Umstechung mit Nadeln ausserhalb des Schnittes, wobei jede Nadel durch eine Klemme straff gehalten wird. Die Blutstillung in der Diploe wird durch den Knochenstaub erzielt, der beim Schneiden des Knochens erzeugt wird. Die Erfolge mit dieser Methode am allgemeinen Spitale in Mexiko wahrend drei Jahren waren zufriedenstellend.

SUMARIO

Un instrumento nuevo para crancotomía

El autor describe un instrumento el cual ha sido hecho para hacer craneotomias y su método para producir hemostasia del cuero cabelludo y del diploe. Con este instrumento él es capaz de cortar el craneo en una forma circular, oval, cuadrada ó triangular. Hemostasia del cuero cabelludo se obtiene introduciendo agujas afuera de la incisión, cada aguja es sostenida firmemente con una pinza. Hemostasia del diploe es asegurada por el polvo de hueso producido al cortar el hueso. Los resultados en el uso de este instrumento en el Hospital General, Mexico City, durante tres años ha producido resultados satisfactorios.

RIASSUNTO

Uno strumento nuovo per la craniotomia

L'autore descrive uno strumento che egli ha inventato per fare la craniotomia e il suo metodo per produrre l'emostasi del pericranio e del diploe. Con questo strumento egli può tagliare dal cranio un'area circolare, ovale, quadrata o triangolare. Si è ottenuta l'emostasi del pericranio, inserendo aghi fuori l'incisione, ciascun'ago tenuto fermamente in posto per una pinza. Si ottiene l'emostasi del diploe dalla polvere dell'osso, prodotta col tagliare l'osso. I risultati dell'uso di questi strumenti nell' Ospedale Generale nella Città di Messico per tre anni sono soddisfacenti.

* * *

The John Hunter Medal and the Triennial Prize were presented to **Col. L. E. H. Whitby** at a recent meeting of the Council of the Royal College of Surgeons of England. The Jacksonian Prize for the year 1939 was awarded to **F. F. Rundle** for his essay on 'The Pathology and Treatment of Thyrotoxicosis', and a certificate of honorable mention was awarded to **N. M. Harry,** of Melbourne for an essay on the same subject. The subject approved for the Jacksonian Prize for 1941 was 'Injuries to Peripheral Nerves, with Especial Reference to the Late After Results'.

The Medical Society of New Jersey held its one hundred and seventy-fourth annual meeting June 3, 4 and 5 at Haddon Hall, Atlantic City. In addition to sections on the various specialties combined sessions were held for medicine and gastroenterology, pediatrics and radiology, and surgery, obstetrics and gynecology. **Dr. Hyman I. Goldstein,** of Camden, was chairman of the gastroenterology division and **Dr. Thomas M. Kain,** also of Camden, was chairman of the medicine division.

heat and Brown's splint may be applied to the foot and leg; if signs of marked compression are present, the plaster splint may be loosened by means of lateral incisions or by cutting a posterior H. Control roentgenograms should be taken. The patient is allowed to walk with crutches in two months, without bearing his weight on the affected foot. Progress in walking will be gradual, depending upon the degree of osteogenesis. Orthopedic appliances will be helpful.

The combination operation described above can be performed easily by surgeons accustomed to this type of work. Theoretically the method has the following advantages: Tenotomy of the tendo Achillis is unnecessary; the graft is strong and remains in its own niche; the graft receives stress longitudinally, and this action, added to that of the bone fragments used to fill the hollow, is osteogenetic (according to Wolf's laws). With time, the graft will increase in strength instead of, as happens in other cases, being resorbed with exercise and the passage of time.

Patients operated upon in this manner are still under observation and study.

SUMMARY

The author describes a new technic for the surgical treatment of paralytic talipes equinus in adults. Arthrodesis and arthrorisis are combined, with modifications. Triple arthrodesis (astragalocalcaneus, astragaloscaphoid, calcanocuboid) is employed to effect anteroposterior and lateral stabilization; posterior arthrorisis is used to produce limitation of anteroposterior movement to the required degree.

RÉSUMÉ

Arthrorise: Une nouvelle technique pour le pied bot équin paralytique chez l'adulte

L'auteur décrit une nouvelle technique pour le traitement chirurgical du pied bot équin chez l'adulte. Il combine, avec quelques modifications, l'arthrodèse et l'arthrorise. Pour obtenir la stabilisation antéro-postérieure et latéral, l'auteur a recours à une triple arthrodèse: astragalo-calcanéale, astragalo-scaphoïde et calcanéo-cuboide; l'arthrorise postérieure nous assure la limitation, au degré désiré, du mouvement antéro-postérieure.

ZUSAMMENFASSUNG

Eine neue Technik für die Arthrodese im Pes Equinus Talus Paralyticus des Erwachsehen

Der Auter beschreibt eine neue chirurgische Behandlungs-methode. Arthrodese und Arthrorisis sind mit gewissen Veränderungen vereinigt. Dreifache Arthrodese wird verwandt um antero-posteriore und laterale Stabilisation zu erzielen. Posteriore Arthrodese wird verwandt um eine Beschränkung der antero-posterioren Bewengung bis zu einem gewünschten Mass zu beschränken.

SUMARIO

Una técnica nueva para artrorisis por tálipes equinus paralítico en Adultos

El autor describe una técnica nueva para el tratamiento quirúrgico de tálipes equinus paralítico en el adulto. Artrodesis y artririsis son combinadas, con modificaciones. Artrodesis triple (astragalocalcaneos, astragaloescafoidea, calcanocuboidea) es empleada para afectar estabilización antero-posterior y lateral; artrorisis posterior es usada para producir limitación de movimientos al grado requerido.

areas is as follows: The first lumbar nerve innervates a band of the abdominal wall parallel to Poupart's ligament, including the suprapubic region, the root of the penis and the superior half of the scrotum The second lumbar nerve innervates the superior and anterior part of the thigh up to a horizontal line passing through the middle part of the scrotum, while the third lumbar nerve continues from the midportion of the thigh down to the patella—an area of trigonal form. The fourth lumbar nerve supplies the median and lateral surfaces of the thigh, the anterior surface of the knee and the anterior and internal surfaces of the leg, or is Y-shaped. The fifth lumbar supplies the lateral surface of the leg and foot, terminating at the plantar surface of the fourth toe and the dorsal surface of the first toe

The first sacral nerve supplies the skin of the foot not innervated by the fifth lumbar The second sacral nerve innervates the posterior surface of the thigh and leg. The third, fourth and fifth sacrals, with the coccygeal, innervate the skin of the gluteal region, the perineum, the anterior part of the penis and the lower half of the scrotum

As for the viscera, the second, third and fourth sacral nerves innervate the rectum, the first lumbar, the lower end of the ureter, the first four sacrals, the mucosa of the bladder; the fifth lumbar and the first three sacrals, the prostate, the first lumbar, the epididymis In women the uterus, particularly the cervix, is innervated by the first four sacrals.

In regard to the muscles, the first lumbar nerve innervates the quadratus lumborum, external oblique, transversalis and cremaster muscles, while the second lumbar nerve innervates the psoas minor, iliacus, pectineus, adductor longus and adductor brevis, rectus femoris and gracilis, the third lumbar innervates the psoas, iliac, pectineus, adductors, rectus femoris, obturator externus, gracilis and crureus. The fourth lumbar innervates the psoas magnus, adductor longus, adductor brevis, rectus femoris, obturator externus, crureus, gluteus maximus, gluteus medius, tensor vaginae femoris, obturator internus and the muscles of the anterior part of the leg except the gastrocnemius. The first sacral nerve innervates the gluteus, tensor vaginae femoris, pyramidalis, obturator internus, crureus, muscles of the posterior region of the thigh and muscles of the leg and foot The second sacral innervates the gluteus maximus, pyramidalis, obturator internus, semitendinosus, crural biceps, gastrocnemius, soleus, flexor digitorum, the muscles of the foot (plantar surface) and the muscles of the perineum The fourth sacral innervates the levator ani, coccygeal and perineal muscles. The fifth sacral and coccygeal nerves supply the coccygeal muscle.

INDICATIONS FOR USE

It is well to know the distribution of the sensory, visceral and motor paths, in order to modify the technic according to the requirements of the particular operation In fact, the use of barbotage, when operating on the leg, for instance, makes considerable difference If barbotage is not resorted to, the sensibility of the anterior surface and lower end of the leg may remain intact with only the skin of the popliteal space being numbed, for the nerves of these teguments are innervated by the lumbar plexus and can become infiltrated without barbotage, if a very diffusible analgesic substance is used In operations on the abdominal viscera incomplete anesthesia may result from neglecting to practice barbotage or to use a diffusible anesthetic In operations on the testicles or ovaries, the injected solution must reach the dorsal nerves

The belief that spinal anesthesia should not be used in obstetrics because it impedes the uterine contractions is in-

BONE GRAFT OF THE MANDIBLE WITH PROSTHETIC OBJECTIVE

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MEMBERS of the dental profession are indebted to the World War for the fact that they have been compelled to solve many prosthetic and faciomaxillary problems. Much is owed to J. Lebedinsky, dental surgeon of the hospitals of Paris and Chief of the Prosthetic Institute, and to M. Virenque, Intern of the hospitals of Paris, from whose experiments and technic excellent results have been obtained.

The present war reminds us that the number of wounded men in each combat was so great that the necessity arose to replace those lost at the front and to reestablish physically the injured as quickly as possible so that they might return to the front, or so that later they, as invalids, would not be a burden to the state.

Bone-grafting in general has been carried on in Mexico for the past thirty years with results which were anything but uniform. Dr. Rosendo Amor is pessimistic over the results of bone-grafting and bases his opinions upon his clinical observations, regardless of the operative technic employed. In reviewing the benefits of bone-grafting, failures often are overlooked. In order to avoid disappointments, it is essential to know the causes which determine failure and the elements which are indispensable for success. It is necessary to know as far as possible whether the grafted bone will survive and whether its total survival is certain or problematical.

Whether only the cortical layers of the bone remain alive and the medullary portions of the transplant necrose before they become vascularized is a moot question. I am of the opinion, based upon my own observations, that the majority of grafts do survive.

The survival of the transplanted bone depends principally upon its age and the perfection of its contact with the adjacent tissues. As a rule, grafted bone adheres to the contiguous tissues, and, if the total graft comprises all the layers of the bone, including the periosteal and endosteal components, it is logical to conclude that it has a greater opportunity to survive.

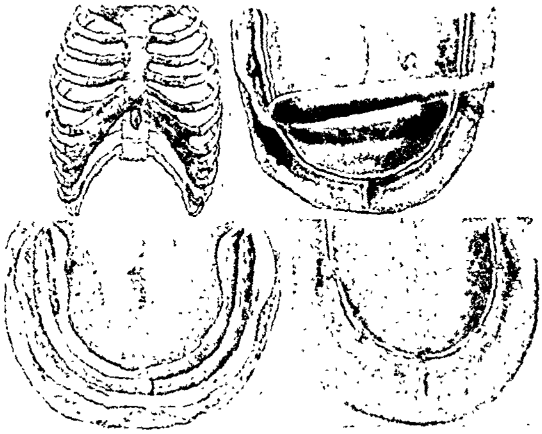

Fig. 1. Upper left. A piece of bone about 0.5 cm. in thickness is removed from superior border of sixth rib.

Fig. 2. Upper right. Incision made along alveolar border of maxilla to receive bone graft.

Figs. 3 and 4. Lower left and right. Suturing of incision with fragments of graft in correct position.

The dental surgeon is at times confronted with the necessity of making a denture, especially a lower one, when the entire alveolar process has regressed to such an extent that the prosthesis cannot possibly remain in place.

I have devised a method of treating these cases by replacing the loss of the should be considered as a block anesthesia Only rarely should this form of anesthesia be used above the diaphragm

RÉSUMÉ

Quelques observations sur l'anesthesie rachidienne

L'auteur considere les contre indications et les indications pour l'emploi de l'anesthesie rachidienne se basant sur l'etat du malade et sur le siege de l'operation Il faut envisager cette anesthésie comme un blocage Rarement, on y aura recours pour les operations au-dessus du niveau du diaphragme

ZUSAMMENFASSUNG

Uber Spinalanasthesie

Indicationen und Contraindicationen fur die Verwendung von Spinalanasthesie sind aufgefuhrt, je nach der Lage des Operationsfeldes und der Verfassung des Patienten Diese Anasthesieform sollte nur als Blockanasthesie angewandt werden Ihre Verwendung oberhalb des Zwerchfells sollte nur in Ausnahmefallen erlaubt werden

SUMARIO

Algunas consideraciones en anestesia espinal

Contraindicaciones é indicaciones para el uso de la anestesia espinal es presentado, basados en la localización de la operacion y las condiciones del enfermo Esta debe de considerarse como anestesia regional o bloqueo Solamente en casos raros debe de usarse esta anestesia en operaciones arriba del diafragma

RIASSUNTO

Alcune considerazioni sull'anestesia spinale

Contra-indicazioni ed indicazioni per l'uso dell'anestesia spinale sono presentate, basate sulla locazione dell'operazione e la condizione del paziente Dev'essere considerata come anestesia di blocco Solo in casi rari e permesso usare questa forma di anestesia per operazioni piu alte del diaframma

* * *

The Ninth International Congress of Accidents and Diseases of Industry will be held in Rome in 1942 Topics to be discussed are prophylaxis of tetanus treatment of recent accidental wounds and the use of massage exercise and mechanotherapy in the treatment of injuries At the last meeting of the Permanent International Committee of the organization 18 new members were appointed Among these were **Dr Sayers** of the Division of Industrial Hygiene National Institute of Health Washington D C **Prof Manuel A Manzanilla** Mexico, D F , and **Dr Eduardo Bello** and **Dr Carvallo,** Hospital Arzobispo Loayza, Lima Peru

Dr Louis Hamman, professor of clinical medicine at the Johns Hopkins University, was elected president of the Association of American Physicians at the meeting held in Atlantic City He succeeds **Dr Gerald B Webb,** of Colorado Springs **Dr J H Means,** of Boston, was chosen vice president

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The meeting of the sixth International Congress for Experimental Cytology, scheduled to meet in Stockholm from July 25 to August 1, has been indefinitely postponed because of the international situation

SURGICAL TREATMENT OF PELVIC PERITONITIS

JUAN MORA Y ORTIZ, M.D., F.I.C.S.

Member of the Mexican Academy of Surgery

MEXICO CITY, MEXICO

THE increase in the frequency of pelvic peritonitis is due to the increase in the number of criminal abortions. The fatal results are due either to delay, or to imprudent haste, in operating. My observation of cases treated during the last eight years in my gynecological service has lead me to summarize the indications for surgical treatment in pelvic peritonitis of genital origin.

It is not necessary to describe the well-known symptoms or to differentiate this condition from appendicitis, intestinal occlusion, ileitis (especially terminal) or torsion of a genital tumor, because these can be easily identified. There are, however, two pathologic conditions with which pelvic peritonitis may often be confused. The following case histories are presented to illustrate this point.

CASE REPORTS

A woman giving a history of gonorrhea was examined in my service in December, 1936, because of an acute syndrome of the lower abdomen, accompanied by severe general symptoms. Locally rigidity and severe pain were present in the hypogastrium and iliac fossa. The vaginal cul-de-sacs appeared to contain a resistant mass. A diagnosis of suppurative pelvic peritonitis was made and a colpotomy was performed. No pus was present, but instead an irregular mass occupied the floor of the pelvis; this mass extended backwards and to the left and was definitely fluctuating to the right. A vaginal hysterectomy by hemisection was then performed, Doyen technic, whereupon the mass was found to be a fibroma; suppurative salpingitis was present on the right side.

Two months later another patient was brought to my service with symptoms similar to those presented by the previous case, the difference being that the neoformation occupied the entire pelvic cavity. Colpotomy proving unsuccessful, laparotomy was performed, at which a large, embedded fibroma was found, accompanied by bilateral suppurative salpingitis, more marked on the left than on the right.

DIFFERENTIAL DIAGNOSIS

The marked clinical similarity between acute pelvic peritonitis and suppurative salpingitis, when the latter appears in women who also have fibromas, should be kept in mind in order that one may be prepared for the necessary surgical procedure.

Ruptured tubal pregnancy is another condition with which pelvic peritonitis may be confused. To avoid error in these cases, in addition to a urinary prolan test one should obtain a careful history, especially of the early stages of the condition. In tubal pregnancy internal hemorrhage causes tachycardia and hypotension; in pelvic peritonitis this does not occur.

TYPES OF PELVIC PERITONITIS

Pelvic peritonitis of genital origin may be divided into three groups corresponding to the anatomic lesions which are manifested by different symptoms and to the surgical procedures required.

A. Hyperseptic Type. In the hyperseptic type the peritoneum and cellular tissue of the true pelvis are infiltrated

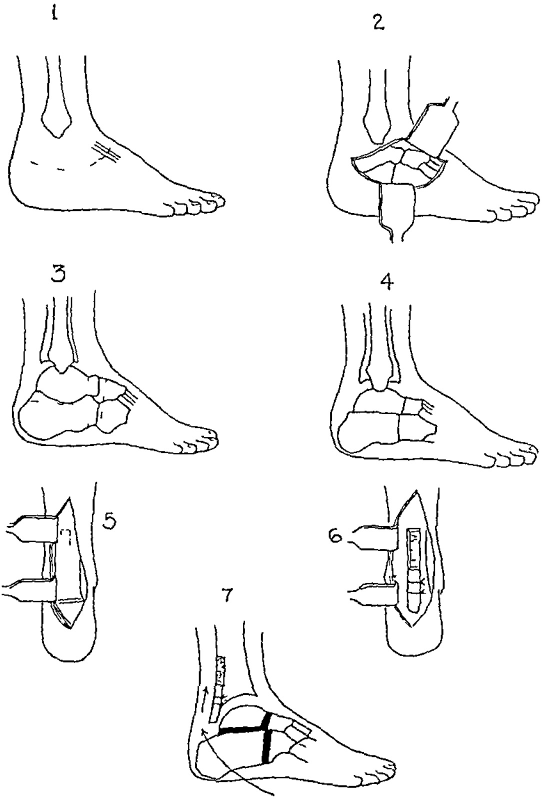

Fig 1 Lateral incision beginning a little below and posterior to tibula and extending to point 1 or 2 cm anterior to outer borders of tendons of the extensor longus digitorum Fig 2 Skin and tendons retracted with hooks towards internal border of foot and downward

rection of dotted lines is used to section head face of scaphoid anterior articular surface of Fig 4 Incision 7 cm in length is made along inner border of tendo Achillis beginning with its insertion in calcaneus

Fig 5 Posterior surface of tibia exposed Dotted line indicates graft which is removed from tibia with a chisel or saw Fig 6 Hollow space left after removal of graft is filled with small pieces of bone previously removed from astragalus Fig 7 Graft is shoved downward into bed made by chisel as shown in Fig 3

A lateral sketch shows the static effect of the combination of arthrodesis and arthrorisis (fig 7)

Postoperatively, the patient's general condition should be watched c [illegible] y

semblent (appendicite, occlusion intestinale, iléite et torsion due à un neoplasme). Il est plus difficile de reconnaître le type exacte de la péritonite qui afflige le malade. Ce diagnostic determine le traitement qu'on doit adopter. Obtenez du malade des renseignements précis. La péritonite est ou hyperseptique ou séreuse ou plastique et purulente. Pour la péritonite hyperseptique un traitement médical peut suffire; pour la péritonite séreuse on opère que dans les cas graves. Le traitement opératoire donne d'excellents résultats dans les cas de péritonite plastique et purulente.

ZUSAMMENFASSUNG

Chirurgische Behandlung in Beckenperitonitis

Differentialdiagnose zwischen Bekkenperitonitis und ähnlichen Erkrankungen (Blinddarmentzündung, Darmverschluss, Ileitis, und Torsion infolge von Tumor) ist ziemlich leicht. Es ist etwas schwieriger den Typ der Peritonitis zu erkennen, damit eine richtige Behandlung eingeleitet werden kann. Dies kann durch eine genaue Krankengeschichte erleichtert werden. Drei Arten können unterschieden werden: eine Hyperseptische, eine Seröse, und eine plastisch-eitrige. In der Hyperseptischen kann interne Behandlung genügen; in der Serosen ist Chirurgie nur in sehr schweren Fällen anzuraten und in der Plastisch-Eitrigen gibt Chirurgie ausgezeichnete Erfolge.

SUMARIO

Tratamiento quirúrgico de la pelviperitonitis

La diferienciación entre la pelvi-peritonitis y enfermedades que se paresen (apendicitis, oclución intestinal, ileitis y torciones de tumores) es relativamente facil. Es mas dificultoso determinar el tipo exacto de la peritonitis presente asi que tratamiento propio sea instituido. Esto es hecho mas facilmente si una historia clínica cuidadosa se ha hecho. Tres tipos son reconocidos: (1) hiperséptico, (2) el seroso y (3) el plástico purulento. En el hiperséptico, tratamiento médico puede ser suficiente; en el seroso, cirugía es aconsejada en los casos severos; en el purulento plástico, circugía produce resultados excelentes.

RIASSUNTO

Trattamento chirurgico nella peritonite pelvic

Il differenziare fra la peritonite pelvica e malattie che la somigliano (appendicite, occlusione intestinale, ileite e torsione dovuta a un tumore) è relativamente facile. E un po' più difficile determinare il tipo esatto di peritonite presente, in modo che si possa stabilire il trattamento giusto. Questo si fa più facilmente se si prende una storia esatta. Tre tipi si riconoscono; l'ipersettico, il seroso e il purulento plastico. Nell 'ipersettico, il trattamento medico può essere sufficiente; nel seroso la chirurgia è utile solo in casi gravi; nel purulento plastico, la chirurgia produce risultati eccellenti.

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THE NEXT INTERNATIONAL ASSEMBLY OF THE INTERNATIONAL COLLEGE OF SURGEONS WILL BE HELD IN MEXICO CITY, MEXICO, AUGUST 10-14, 141.

RIASSUNTO

Una tecnica nuova per artrorisi, per piede storto paralitico equinus negli adulti

L'autore descrive una tecnica nuova per il trattamento chirurgico del piede storto paralitico equinus negli adulti. L'artrodesi e l'artrorisi sono combinati con modificazioni. L'artrodesi tripla (astragalo-calcaneo, astragalo-scafoide, calcanocuboide) è usata per effettuare stabilità anteroposteriore e laterale; l'artrorisi posteriore si usa per produrre una limitazione del movimento anteroposteriore al grado voluto.

Book Reviews

A Century of Belgian Poetry (1830-1930). By Francisco Castillo Nájera, Surgeon, Man of Letters and Diplomat, Present Ambassador of Mexico in Washington. Pp. 548. Editors: Brussels, Labor, and Madrid, M. Aguilar.

NAJERA, in this work, achieves a veritable triumph of talent and perseverance in which he shows his prowess as historian, critic, biographer and bibliographer in over 250 translations from Belgian poets. His translations reveal skilled knowledge of the poetical melody of the French language, faithfully portrayed in Spanish without losing the charm of the original text.

Castillo Nájera demonstrates in his work facility and genius in letters, science and diplomacy.

Versatility in the arts and sciences has been shown by surgeons like Billroth, that formidable leader of major surgery who attracted the medical world to his clinical amphitheatre, where he demonstrated his skill with the scalpel, and who relaxed in private musicales at his residence, where he displayed his skill on the violin.

The surgeon, in fulfillment of his serious and at times life-saving tasks and responsibilities, may appear foreign or cold to the sensibilities and emotions of poetry, music and the beaux-arts, and yet history records attainments in the arts and sciences by the masters of the operating room.

When medicine was in the domain of the philosophers, the astronomers and the mathematicians, the gifts of poetry, music and the arts were by-products of the master minds which encompassed universal knowledge.

The travels and diplomatic experiences of Castillo Nájera have been world-wide and unique, affording him rare opportunities to satiate his literary proclivities and, in the field of diplomacy, to acquire understanding of the intricacies of political problems which he successfully meets with tact and sagacity.

The historical sketch of the poetical expression in the French language and poetical expression in the Flemish language are engaging and of rare beauty.

Those conversant with the French and Spanish languages will find in this work of Castillo Nájera an historical gathering of lyric gems over the century just closed (1830-1930) that cannot be perused in any other work like this, for it doesn't exist.

DESIDERO ROMAN

The Surgery of Injury and Plastic Repair. *By Samuel Fomon, Ph. D, M.D., Formerly* Major, Medical Corps, U. S. Army. Price $15. Pp 1,400, with 925 illustrations Baltimore: William Wood & Company, 1939.

IN an attempt to encompass within one volume the entire literature on traumatic surgery, the author has combed the leading periodicals and publications and from this material he has

(Please turn to page 280)

concept of a process which is substantially developed in the connective tissue structure of the peritoneum or in the subjacent connective tissue.

A surgeon should also be a physiologist, for, according to the words of Leriche and Policard, "He who would understand the pathologic must begin by learning the normal state and its variations. The more a surgeon experiments on the necessity for knowing the why and the wherefore of conditions, the more he will search into pathologic physiology for guidance in therapeutics."

Our therapeutic ideas must be obtained from previous physiologic reasonings, to gain ultimate confirmation clinically.

Clinically and pathologically pelvic cellulitis is classified as neoplastic and inflammatory, even when the former is complicated by the latter.

CELLULITIS OF NEOPLASTIC ORIGIN

Pelvic cellulitis of neoplastic origin differs from other forms in differential diagnosis and treatment. Not all neoplastic lesions grow by infiltration from neighboring tissues, since all benign tumors of interstitial or central growth develop by the increase in volume of their own mass with repulsion of the surrounding tissues, in which case the connective tissue resembles benign cellulitis of inflammatory origin without infection. In cases of malignant neoplasms, tumors of the connective tissue are generalized by the blood stream, metastases invading the walls of the veins to the extent of causing the formation of emboli at different points which frequently respect the connective tissue — that exuberant web, rich in lymph, so often affected by the malignant neoplasias of epithelial type whose cells engraft themselves successively in the interstices of the supporting connective tissue, carried down by the lymph current, invading the lymphatic parts (Sampson Handley's penetration) to the extent of producing cancerous lymphangitis, adenitis and embolism. Helbit even calls it lymphophilic cancer in opposition to hemophilic cancer, which directly invades the blood stream by primary embolism. These are the only cases deserving to be called neoplastic cellulitis. In Mexico the conception of pelvic cellulitis has tended to be circumscribed: The inflammatory processes are regarded in an eminently clinical spirit, even when based on the physiopathology of the interstitial connective tissue, although some neoplastic cases could be included, especially malignant tumors of epithelial origin, which by their pathogenesis resemble inflammatory cellular infiltration.

Mexican clinicians have advanced the knowledge of pelvic cellulitis scientifically and therapeutically in an endeavor to understand the physiopathology of connective tissue.

CELLULITIS OF INFLAMMATORY ORIGIN

Pelvic cellulitis has many clinical aspects, from the sudden and fulminating type with acute and grave symptoms, to the insidious invasion which appears like a recurrence of a previous pelvic inflammation.

Bacterial invasion which produces acute pelvic cellulitis blocks the reticular structures; these are bathed in lymph, absorbing toxic and microbial products, the results of cellular disintegration. Their pathogenic action is increased by the dilatation of the capillaries which, bathed in a lymph of an altered physicochemical constitution, are unable to bring about nutritive changes in the fixed cells and in those of lesser mobility. The bacteria, surrounded by this plasma, are destroyed; capillary occlusion impedes the ingress of mobile cells, while the migratory cells aggravate the condition.

Interstitial edema drowns the cells, so to speak, and by compressing the nerve endings, provokes diffuse pain.

alveolar process with a bone-graft, using the technic described below

The operation consists essentially in taking pieces of bone from the superior border of the sixth rib (fig 1) about one-half centimeter in thickness, and of whatever length is desired, this transplant is then grafted to the mandible The curve of this bone segment is similar to that of the mandible The loss of the transplant from the chest is of no moment to the patient

The graft is adjusted beforehand and cut into fragments which are made to conform to the curve of the maxilla. An incision is then made along the alveolar border (fig 2) the edges of the wound are separated and the two fragments of bone are inserted in the wound, care being taken to incise the periosteum so that the graft will be in contact with the mandible The operation is concluded by suturing the incision with the fragments of the graft in correct position (figs 3 and 4)

SUMMARY

The author describes his method of compensating for regression of the alveolar process to obtain support for a prosthesis The operation consists in removing pieces of bone from the superior border of the sixth rib and grafting them to the mandible. The graft must include all layers of the bone and must be in contact with the mandible

RÉSUMÉ

Les greffes osseuses du mandibule pour objectif a prothetique

L'auteur décrit sa methode de compenser à la régression de l'apophyse alveolaire et de créer un support pour une prothèse. Il enlève un segment du bord supérieur de la sixième côte. Ce segment est greffé dans le mandibule. Le greffon doit renfermer toutes les couches de l'os et doit être en contact avec le mandibule.

ZUSAMMENFASSUNG

Knochenimplantat in den Unterkiefer mit Prothesenwirkung

Verfasser beschreibt seine Methode der Bildung eines Halts für Prothesen in Fallen von Retrognathie des Alveolarfortsatzes. Die Operation besteht in der Entfernung von Knochenstücken vom obern Rande der sechsten Rippe und Einlegung in den Unterkiefer. Das Transplantat muss alle Knochenschichten enthalten und dem Unterkiefer dicht anliegen.

SUMARIO

Injerto de hueso de la mandibula con objetivo de prótesis

El autor describe su método de compensación por regresión de los procesos alveolares para darle un soporte por prótesis. La operación consiste en tomar pedazos de huesos del borde superior de la sexta costilla é injertandolos en la mandibula. El injerto debe de incluir todas las capas del hueso y debe de estar en contacto con la mandibula.

RIASSUNTO

L'innesto dell'osso della mandibola con l'oggettivo protesi

L'autore descrive il suo metodo di compensazione per il regresso del processo alveolare per provvedere un sostegno per una protesi. L'operazione consiste del rimuovere pezzi di ossa dall'orlo superiore della sesta costa e dell'innestarli alla mandibola. L'innesto deve includere tutti stratti dell' [illegible] e devè essere in contatto con la [illegible]

connective tissue. Various types of phlegmons of the hypogastric sheath, broad ligament, pelvirectal space, etc., result — processes which are no longer pelvic cellulitis but the consequences of special conditions which have imprinted a destructive character upon the cells and tissues. These represent necrosis of the connective tissue, while cellulitis per se is a more or less prolonged state of inflammation, which leads either to sclerosis, resolution of the focus, or to suppuration. In cellulitis of the pelvic organs, therefore, the process will be found more diffuse; inflammation will appear in connective tissues exceptionally rich in lymph spaces, representing a prolonged phase of the cycle of inflammation.

The question arises as to whether lack of suppuration means that pelvic cellulitis is not present or whether it is less likely to be present in cases which develop adhesive processes without suppuration.

In infiltrations involving the perirectal or periuterine tissues many days pass before the process becomes diffuse or before suppuration can be detected. This phase represents pelvic cellulitis. When necrosis or suppuration results, it is because a cellulitic process has been added to another cause — that of capillary embolisms and necrosis of the tissues through vascular obstruction. Inasmuch as pelvic cellulitis may involve all the pelvic organs, abscess formation often occurs in the broad ligament, the infundibulum and the ischiorectal fossa.

In pelvic cellulitis due to interstitial edema, humoral alterations, etc., the obvious treatment points to correct stasis by drainage, perhaps, by means of a posterior colpotomy. Where suppuration is manifest in specific organs, extirpation should be considered. Diathermy and moist heat give excellent results in many cases. Streptococcic infections may be treated by chemotherapy (sulfonethylmethane) in large doses, 5 to 8 g. a day in fractioned doses, every four hours, always given with sodium bicarbonate. Other measures are specific or nonspecific vaccination with aseptic pus; transfusions or immuno-transfusions; or serum therapy in large doses. Dr. Francisco Reyes, who has used soluble mercurochrome with great success, reports that it is of great value in these cases, although care must be exercised in the handling of large doses.

Surgery is effective in cases in which a focus of infection is somewhat distant from the pelvis, such as an ulcerous cervicitis, causing inflammation of the tissue of the pelvis. With elimination of the focus of infection, the pelvic cellulitis usually clears up. Electrosurgery is the best treatment for these cases. Electrocoagulation of an infected cervix, drainage of the uterine cavity, extirpation of Bartholin's glands or ample excision of abscessed periurethral glands should be detected and properly remedied.

INFECTIONS OF INTESTINES

The second group of cases of pelvic cellulitis includes affections of the rectum, such as proctitis, strictures, infected carcinoma, phlebitis, hemorrhoids, fistulas, diverticulitis of the colon, tuberculosis and rectocolic polyps.

In nearly all these infections, it is through the lymphatic channels that microorganisms (streptococci, colon bacilli and staphylococci) invade the rectal cellular tissues and the perirectal tissues, or, following the branches of the hemorrhoidal artery, reach the lymph nodes and the connective tissue surrounding these.

Therapeutic measures should be general and should include the extirpation of the focus of infection. Vaccines and chemotherapy are indicated in the presence of streptococci and staphylococci. Operative treatment should aim at extirpation of the causal lesion. Infected hemorrhoids should be removed, with ample drainage of the perianal tiswith serum and the connective tissue is gangrenous Under these conditions the circulatory, respiratory and nervous symptoms which predominate bespeak the profound intoxication of the organism Abdominal manifestations are less impressive and pelvic manifestations are absent except for increased resistance perceived on palpating the abdomen

B Serous Type Serous pelvic peritonitis forms the second group In this type there is formation of false membranes which enclose a number of small collections of serum These give rise to general manifestations of a less serious nature than do the others and present, in addition, a frank reaction in the infraumbilical region Spontaneous pain rigidity and meteorism are limited to the hypogastrium and the iliac fossae and indicate freedom from involvement of the upper part of the abdomen Pain provoked by pressure increases towards the pubic symphysis and is more severe when compression is released (Blomberg's sign) Upon bimanual examination a high, utero adnexal induration is felt, in which the presence of fluid is doubtful

C Purulent Type In plastic purulent pelvic peritonitis the symptoms are localized in the lower abdomen and the pelvis The most characteristic symptom is a more or less voluminous plastic induration in the cul de sac This may be of liquid consistency, resistant or fluctuating

TREATMENT

In these cases the surgeon should endeavor to distinguish between the case in which an impetuous operation would lead to death and the case in which a prompt intervention may be a life saving measure

In hyperseptic pelvic peritonitis, sustained general and medical treatment may be sufficient Operation is contraindicated in these cases A woman with hyperseptic pelvic peritonitis following an abortion was brought to my service in April, 1936, during the night and operated upon by my assistant Laparotomy *cleansing, disinfection and canalization* (Mickiulicz technic) were performed, death occurred four hours later I have seen many similar cases and I believe that it is best to refrain from operating in these instances

In cases of serous peritonitis, or those of the second group, in which general symptoms are less marked, the surgeon must exercise watchful waiting, and only in the case of aggravation should one proceed to perform laparotomy, with adequate drainage These cases usually prove fatal and only slight hope may be offered even by prompt surgery Death usually occurs suddenly

Finally, in plastic purulent pelvic peritonitis, comprising the third group, surgical interference by immediate posterior colpotomy is indicated and the results are usually excellent

SUMMARY

Differentiation between pelvic peritonitis and diseases which resemble it (appendicitis, intestinal occlusion, ileitis and torsion due to tumor) usually is relatively simple The exact type of pathology is somewhat more difficult to determine Careful history taking is of utmost importance Three types are recognized (1) the hyperseptic, (2) the serous and (3) the plastic purulent In the hyperseptic, medical treatment may be sufficient In the serous, surgery is advisable only in severe cases, in the plastic purulent variety, surgery yields excellent results

RÉSUMÉ

Le traitement chirurgical de la peritonite pelvienne

Il est facile de differencier la péritonite pelvienne des maladies qui lui re-histology, physiology and physiopathology of the pelvic organs and tissues. The condition may arise from disorders of (1) the female genitalia, intra and extra-pelvic; (2) the rectum and its surrounding tissues; (3) extrapelvic organs abnormally introduced into the pelvis; (4) the male genitalia; (5) and the urinary apparatus. The development of each type of disorder and the treatment recommended are described. All wounds of hollow viscera, caused by injury or rupture of the hollow viscera, should be treated surgically to prevent cellulitis from developing.

RÉSUMÉ

La cellulite pelvienne

L'auteur nous présente le développement de la cellulite pelvique en se basant sur l'histologie, la physiologie et la physiopathologie des organes et des tissus pelviens. La cellulite pelvienne peut avoir son origine dans les organes génitaux intra- ou extrapelviens de la femme; dans le rectum et les tissus environnants; dans des organes normalement extrapelviens mais déplacés dans le bassin; dans les organes genitaux mâles; dans l'appareil urinaire. Le développement et le traitement de chacun de ces desordres est décrit. Toute plaie des viscères creux demande un traitement chirurgical afin de prévenir l'infection du tissu cellulaire du bassin pelvien.

ZUSAMMENFASSUNG

Beckenbindegewebsentzündung

Verfasser erläutert die Entwicklung der Beckenbindegewebsentzündung an Hand der Histologie, Physiologie und Physiopathologie der Beckenorgane und Gewebe. Der Zustand kann entstehen auf der Basis von Störungen in 1) weiblichen Genitalien, innerhalb und ausserhalb des Beckens, 2) Mastdarm und umgebendes Gewebe, 3) extrapelvine Organe, die ungewöhnlicherweise ins Becken verlagert wurden, 4) männliche Geschlechtsorgane, 5) Harnogane. Die Entstehung der verschiedenen Formen von Störungen werden beschrieben mit der einzuschlagenden zweckmässigsten Behandlung. Alle Wunden von Gedärmen nach Unfall, oder Risse in den Eingeweiden müssen chirurgisch angegangen werden zwecks Verhütung einer Bindegewebsentzündung.

SUMARIO

Celulitis de la pelvix

El autor explica el desarrollo de la celulitis de la pelvix basandose en a histología, fisiología y fisiopatología de la pelvix, organos y tejidos. La condición puede presentarse de desordenes de (1) los genitales femeninos, intra y extrapelvicos; (2) el recto y los tejidos alrededor; (3) organos extrapelvicos introducidos abnormalmente dentro de la pelvix; (4) los genitales masculinos; (5) y el aparoto urinario. El desarrollo de cada tipo de desorden y el tratamiento recomendado son descrito. Todas las heridas de las viceras huecas, causadas por lesiones y roturas, deben de ser tratadas quirurgicamente para evitar desarrollo de celulitis.

RIASSUNTO

La cellulite pelvia

L'autore spiega lo sviluppo della cellulite pelvica sul baso della istologia, fisiologia, e fisiopatologia degli organi pelvici e tessuti. La condizione puo provenire da disordini (1) delle parti genitali femminili, intra e extra pelviche; (2) il retto ed i suoi tessuti circostanti; (3) organi extra-pelvici in modo anormale introdotti nel bacino; le parti genitali maschili; (5) e l'apparecchio urinario. Lo sviluppo de ognuno di questi tipi di disordine e la cura raccomandata, sono descritti. Tutte ferite dei visceri cavi, causate da lesione o rottura dei visceri cavi, devono essere curate chirurgicamente per prevenire lo sviluppo della cellulite.

PELVIC CELLULITIS

[illegible] ROJAS AVENDAÑO, M.D., F.I.C.S.
of the Mexican Academy of Surgery
MEXICO CITY MEXICO

EACH school [illegible] tries to create its [illegible]logy according to its [illegible] and investigations. Certain [illegible] which are meaningful to some [illegible] vague ideas to others. For example to the French school hepatic insufficiency has been a fruitful field of hypothetical work, which, through clinical biological and pathological study has been the foundation for all studies in hepatology

The term cellulitis is to some only an abstract entity within whose imprecise boundaries there would be room for a great deal of pathology, but to certain pathologists it implies clinical facts and biological concepts by means of which far-reaching therapeutic effects are obtained.

Connective tissues are the fundamentals of our economy, and although they vary from the least differentiated (embryonal) tissue to the most highly specialized (osseous or cartilaginous) tissue of the adult, they are elements of the same tissue group, and their morphological divergencies are due only to chemical changes of a local order. The entire reticulo-endothelial system is but a form of cellular elements of connective tissue origin.

The histologic characteristic of connective tissue is its formation from collagenous fibers with a system of small elastic fibers anastomosing among themselves to form a fairly dense network which gives it the characteristic of elasticity. In the interstices of their network are the cells, some being autochthonous, the aborigines of this tissue whose activity and nutrition are restricted; others, of a great nutritive and elaborative capacity, are usually mobile and active in phagocytosis, their biologic character enabling them to transform themselves from one type to another (phagocytes, macrophages, histiocytes, etc.). They have the physiologic characteristic of being bathed by the interstitial lymph which individualizes the economy through its peculiar physicochemical composition Each individual has the reactions occasioned by his interstitial lymph, since it is the environment in which the cells live and are fed and at whose expense they exist.

Considered physiopathologically, the connective tissue alone possesses sanguineous capillaries which are in intimate contact with the elements derived from the blood (polynuclear, secretory elements, lymphocytes, etc.), and in close interchange with the pathogens which reach them from it. Not a single process of inflammation takes place except through the modifications undergone by the capillaries and the interstitial lymph, and consequently the connective tissue.

Surgical pathology is to a great extent connective tissue pathology, since this tissue is charged with the task of repair and suffers most in the process of destruction. What is called inflammation of the epithelial tissues (nervous centers, divers glands, etc), is but the inflammation of the connective tissue which acts as a support and as a nutritive base for the nervous and glandular cells, and, in the peritoneum, for the endothelial lining supported and nourished by the subjacent connective tissue which gives it its physiologic and pathologic character.

Therefore, when speaking of pelvic cellulitis, we cannot get away from the were removed 72 hours after the operation. The patient left the hospital August 2.

The infant weighed six pounds, two ounces (2.8 kg.). It was cyanotic and had plastic malformations of the head. It lived only 17 hours.

It was almost impossible to make a correct diagnosis, although the examination was made by a competent and experienced physician. The fetal parts and the reflex movements were not clearly perceived, nor were the cardiac sounds audible, even though the abdominal walls were thin. Vaginal examination gave the impression that the placenta was being felt through the lower uterine segment, an excusable misinterpretation, since the placenta occupied the rectouterine pouch. It was not possible to palpate the uterus pushed to the posterior side of the pubis on account of the pain induced by palpation and also because it was feared that bleeding would be provoked.

Of the 17 cases of extrauterine pregnancy which I have observed, 6 were lithopedions (these sometimes develop in extrauterine pregnancies), the skeleton of the fetus being eliminated through the rectum, vagina and bladder. Cases of this type have been treated by Drs. Calixto Rojas, Rafael Lucio, Juan María Rodriguez, Manuel T. González and Francisco Reyes. In 4 cases (those observed by Drs. Juan María Rodriguez, Alfonso Erdozain, Francisco de P. Chacón and Alberto López Hermosa) the condition was discovered at autopsy. Of the 7 remaining cases, in only 2 was the correct diagnosis made; in the other 5 the diagnosis was made only at operation. In 2 cases total removal of the placenta was done; partial removal was done in the remaining cases, with marsupialization. Four of the patients died and three babies lived.

In the case herein reported, the classical characteristics of ectopic pregnancy were absent, not only because the different parts of the fetus could not be felt but also because the pregnancy developed almost normally until the last month of gestation. In the majority of cases the patients were extremely pale, lost weight and suffered from acute abdominal syndromes, with frequent abdominal pain which did not disappear even after treatment and rest. Moreover, in the majority of cases complete softening of the cervix, a normal occurrence at the end of pregnancy, did not take place. Finally, the cervical canal was only slightly patulous.

SUMMARY

In the case herein reported, a diagnosis of placenta previa, complicated by abdominal pathology, was made in a multipara, aged 30, at term. Abdominal section revealed a living fetus in the abdominal cavity with the placenta in the posterior cul-de-sac. The baby weighed six pounds, two ounces and was living, but it was cyanotic and had plastic malformations of the head. It died after 17 hours. The mother made an excellent recovery. Of 17 cases of extrauterine pregnancy observed by the author, 6 were lithopedions and 4 were observed at autopsy. In the 7 remaining cases, the correct diagnosis was made before operation in only 2; 4 mothers died and 3 babies lived.

RÉSUMÉ

Grossesse extra-utérine avec enfant vivant à terme

Dans ce cas, il avait été posé le diagnostic de placenta previa compliqué par un état pathologique abdominal. La malade, une miltipara, avait trente ans. La grossesse était à terme. Une césarienne révéla dans la cavité abdominale un foetus vivant. L'enfant pesait six livres; il était cyanotique et présentait des malformations plastiques de la tête. Le placenta était inséré dans le cul-de-sac postérieur. L'enfant vecut dix-sept heures. La mère fit une excellente convalescence. Dans dix-sept cas de gros-

A state of profound suffering may ensue because of vasoconstriction by sympathetic action, capillary stasis embolisms in situ and localized necrosis due to insufficient filtering through the injured endothelial walls of the peritoneum

Etiologically streptococci the gonococci and anaerobic bacteria together or alone, are the instigators of pelvic cellulitis In order of frequency the hemolitic streptococcus alone or associated with the B pertringens heads the list followed closely by the colon bacillus

Most of the cases follow puerperal infections neglected uterine ruptures and postabortive sepsis Many however, occur postoperatively following resection of the rectum for cancer, when a suture tears loose and after septic gynecologic operations A perirectal pelvic cellulitis may follow perineal repairs when needles have been passed through the walls of the rectum Following supravaginal hysterectomy, it probably represents the extension of an infection from the endocervix or of infected cancer when it follows a hysterectomy for cancer It may follow pelvic appendicitis with gangrene and perforation, or perforated diverticulitis or severe pelvic traumatisms with rupture of the hollow viscera of the pelvis

These infections may result in complications, such as infectious endocarditis, accompanied by general systemic symptoms All possible means, such as antitoxins and anti infectious injections, opsonic therapy, immunization injections, etc, should be employed, ample irrigation of the affected areas, and, if an initial focus of infection is safely accessible, extirpation, if possible, with a minimum of trauma, electrosurgery being the procedure of choice Despite our few therapeutic resources, many of these desperate cases have been saved Only those grave and fulminating infections with tendencies to heart failure result fatally in 24 to 48 hours

The type of pelvic cellular infection which is by far the most frequent and for which the term pelvic cellulitis is reserved is rarely a fatal disease, being announced by rigors and fever and general physical manifestations

Pelvic cellulitis may be a complication of a preexisting pelvic condition, originating in order of frequency from (1) the female genitalia, (2) the rectum and its neighboring tissues, (3) the extra pelvic organs abnormally introduced into the pelvis, (4) the male genital apparatus, (5) the urinary apparatus

INFECTIONS OF FEMALE GENITALIA

Cellulitis originating from the female genital apparatus is most frequent and is usually caused by the streptococcus, with the gonococcus and the colon bacillus as accompanying organisms The infection may be parametric or periadnexal and may occur subsequent to childbirth or abortion with infection, as a complication of gonococcic infection, or as the result of curettement or cauterization The inflammatory process may lead to sclerosis or suppuration Sclerosis develops after a prolonged period of hyperemia, which changes the mature connective tissue into embryonal tissue, a process whereby vasodilations, by attentuated but persistent inflammatory reaction, accelerate their cycle towards sclerosis or maturity This results in adhesions, chronic infiltration and plastic cellulitis which often agglutinates all the affected organs into a single mass, twisting their vascular pedicles and imprisoning the more mobile organs (ovaries, oviducts, etc) in the elastic web of the new tissue

Suppuration develops when the mobile elements are very numerous — a multitude of polymorphonuclear leucocytes surrounding the focus These elements are so numerous in the peritoneum and are of such nutritive and elaborative capacity that when they [illegible] they free ferments of [illegible] type which bring abou

COLLEGE PERSONALITIES: MEXICAN CHAPTER

DR. FRANCISCO CASTILLO NÁJERA, F.A.C.S., F.I.C.S.

Dr. Francisco Castillo Nájera, Ambassador to the United States from Mexico, was born November 25, 1886, in the city of Durango. He was graduated March 6, 1913, in medicine from the Faculty of Medicine of the University of Mexico.

He studied urology in the clinic of Joseph in Berlin, (1924) urology under Legueu and abdominal surgery under Duval, Hartmann and Gosset, in the Faculty of Medicine of the University of Paris, 1925. In addition to this, he studied political and social science (Paris) and general archeology and Americana (Brussels).

Professional Activities. He was director of the Juarez Hospital of Mexico (1918-1919), chief of the Medico-Legal Council of the Federal District (1919-1921), being member of the Council of Public Health [illegible] 1922, [illegible] member of the [illegible] sion (1923-1927). His military appointments [illegible] chief of the Health Service of the First Brigade of Infantry of the [illegible] the Army of the Northwest (1915) and of the Third Division of the Northwest (1915-1917); director of the military hospitals of León, Torreón, Nogales and Mexico, at various periods from 1915 to 1927; director of the Military Medical school and chief of the Military Health department of the Armed Forces (1920); member of the Revision Commission of the Certificates of Service of the Military Medical Body (1919-1920) and of the Advisory Commission of Military Hygiene (1918-1920). At present he holds the rank of Brigadier General in the Service of Military Health of the Mexican Army. His teaching appointments include the following: Honorary professor of general pathology (1913) and professor of legal medicine (1920-1922 and 1924) in the Faculty of Medicine of the University of Mexico; professor of general pathology (1927) and of urology (at various periods from 1917 to 1927) in the Military Medical school; professor of urology for postgraduates (1927), Faculty of Graduate Studies, University of Mexico.

Nájera was representative and delegate of the Academy of Medicine, of the Medico-Legal Body of the Federal District and of the States of Tabasco and Sonora at the fifth, sixth and seventh National Medical Congresses held in Puebla (1918), Toluca (1920) and Saltillo (1922), and to the First Conference on Venereal Diseases held in Mexico (1924); personal representative of the president of the Republic at the Tenth National Medical Congress held in Morelia, 1932; vice president of the Second Mexican Congress of Tabardillo, Mexico, in 1921; member of the First Mexican Child Congress, 1921, and General Secretary of the Commission organized subsequently; first vice president of the Seventh Latin-American Medical congress, Mexico, 1930; president of the Mexican Delegation, International Assembly of the International College of Surgeons, New York, 1939.

Commissions and Decorations. He was commissioned by the Mexican Government to the following international congresses and conferences: Panamerican Conference of Venereal Diseases, Washington, 1920; American Association of Health, New York, 1921; Thirteenth Congress of Hydrology and Climatology, Lyons, 1927; Medical Meetings of Brussels, 1928-1932; Sixth International Congress of Military Medicine and Pharmacy, The Hague, 1931, Eighth International Congress of Military Medicine and Pharmacy, Madrid, 1933. Ninth and Tenth Meetings sue; fistulas should be debrided with the electric knife and the rectum should be dilated. In cases of lymphogranulomatosis, cancer and diverticulitis proper therapy should be instituted.

It is questionable whether sigmoidodiverticulitis should be operated upon during the cellulitis period or whether this should be done after first resorting to medical treatment. According to Hailes, Ransome Rea etc. if intestinal obstruction is not complete the surgeon should not operate for pelvic cellulitis. In the presence of obstruction, gangrene or perforation of an infected diverticulum an artificial anus should be made. Leucocytogenous preparations only increase the stasis and the interstitial edema.

COMPLICATIONS

The coexistence of acute inflammation of the right adnexa with appendicular pathology is relatively common. There may be inflammatory appendicular lesions and ovarian changes (congestive, sclerosing or cystic) which may be relieved by adequate treatment, such as correcting the circulatory disorder by ovarian sympathectomy and freeing of adhesions. This should be kept in mind when operating, and conservative surgery should be performed except when degenerating lesions of the ovary and oviduct are present. In all cases of acute appendicitis which simulate pelvic cellulitis or which complicate it by the abnormal situation of the appendix, immediate surgery is necessary.

The important thing to be emphasized is that the cellular process of a purely congestive type is alleviated by active vasodilation and by stimulation of the sympathetic system. No intervention is indicated, at least at first. Where intestinal occlusion threatens, an immediate operation is indicated, once a definite diagnosis has been made. For like reasons the same conduct is to be followed in mesenteric infarct, whether or not it is complicated by pelvic cellulitis.

The uterine mucosa is a tissue which may develop in unusual places. The pathologic complex is known as endometriosis. This tissue responds to the endocrine stimulus in exactly the same manner as the normal mucosa of the uterus. At each menstruation there are pelvic pain, discharge, manifestations of a mild degree of cellulitis, peritoneal irritation and even hemorrhage. Sometimes during menstruation painful nodules may be felt at the level of the ovaries and a marked inflammatory reaction is present. The distinctive characteristic of these disorders is that they disappear completely between menstrual periods, only to reappear at the next period. Women between the ages of 30 and 40 years who have suffered previously from menometastasis or have undergone operations on the genital apparatus are affected by this disorder. Since the condition is caused by mechanical engraftings of uterine mucous, treatment should be surgery or radiotherapy; if surgery is resorted to, it would suffice to extirpate the grey or blue-colored nodules which are present in the ovary and which are frequently confused with cystic formations, like those scattered at the level of the ligaments or in the pelvic infundibulum.

Pelvic cellulitis, through thrombophlebitis of the plexuses of the prostate, is the most frequent cause of grave genitourinary septic states in the male.

Trauma, whether the result of a direct wound or of rupture of hollow viscera in severe injuries of the pelvis (fracture, contusion, etc.) may provoke pelvic cellulitis of an acute type in which development is rapid and dramatic and the symptoms varied. The condition is relieved by treating the lesions occasioned by the trauma.

SUMMARY

The author explains the development of pelvic cellulitis on the basis of the

In the city of Mexico, he has been surgeon of the General Hospital and of the Military Hospital and for 25 years chief surgeon of the Hospital de Jesús.

At the University of Mexico he has held a professorship of Abdominal and Clinical Surgery in the Postgraduate Faculty and the following professorships in the Medical Faculty: of Surgical Technic on the Cadaver; of Therapeutic Surgery; and at present of Clinical Surgery, a course of which he is also in charge in the Medical Military School. In addition, he has been Chief of Surgical Teaching and Sub-Director of the Medical Faculty. He is a member of the Academy of Professors and a member of the University Council.

He has also been president of the Academy of Medicine, first president of the Academy of Surgery, president of the Mexican Medical Society, first general secretary of the Syndicate of Physicians and Surgeons of the Federal District, vice president of the Franco-Mexican Medical Society, member of the Academy of Science of Mexico and Havana, member of the Japanese Red Cross, member of the Society of Military Physicians, honorary surgeon of the General Hospital, honorary professor of the University of Michoacan, honorary member of the Mexican Society of Traumatology and honorary member of the International College of Surgeons. He has been consultant of the Medical Service of the National Railroad of Mexico and has the rank of Lieutenant-Colonel in the Medical Corps of the National Army.

He has written five books about clinics, in general and in particular, and numerous scientific articles which have been published in the medical journals.

EXTRAUTERINE PREGNANCY WITH A LIVING CHILD AT TERM

AVELINO GAVALDON SALAMANCA, M D, F I C S
MEXICO CITY MEXICO

CLINICAL reports of extrauterine pregnancies are of value because they furnish additional information regarding this interesting condition and because augmentation of knowledge makes the physician better able to diagnose the condition correctly Statistics show that extrauterine pregnancies are occurring with increasing frequency Internal hemorrhage is a dreaded complication which, when severe and not promptly arrested, may cost the patient's life within a few hours Misleading symptoms result in errors in diagnosis and, on occasion, disaster

I treated the following case recently, the patient was referred to me by another physician, the diagnosis being placenta praevia

CASE REPORT

A S aged 30 of Pueblo, Mexico, entered the hospital for treatment June 25, 1936 The family and personal history presented nothing of importance The patient had had four normal pregnancies and no miscarriages Her last menstrual period began October 1, 1935, the first three months of gestation were uneventful For eight days in January, 1936, the patient complained of generalized severe pain in the lower part of the abdomen and lumbar region, accompanied by a small amount of vaginal bleeding and by fever and asthenia The patient was treated for threatened abortion Gradually the pain decreased and finally disappeared From then on her progress was uneventful until May 1, when she fell on her abdomen, severe pain followed but was of short duration, although it returned with increasing fetal movements

The attending physician tried during the first days of June to change the position of the fetus by external maneuvers but without success On June 24 vaginal bleeding set in, and at times the pains simulated those of labor The patient was first seen by me the following day

Examination revealed tenseness of the abdominal wall, tenderness in the right iliac fossa and hyperesthesia of the skin The cephalic pole of the child was at the level of the right hypochondrium and the caudal pole in the left iliac fossa, with the neck turned to the left The fetal heart sounds were heard in the superior right abdominal quadrant On vaginal examination, the cervix was found cylindrical and incompletely softened with little dilatation of the cervical canal, which was pushed back posteriorly The cul de sac was occupied by a uniform soft mass The patient's face displayed anguish Her temperature was 101 3° F, pulse 130 and respirations 30

The diagnosis of placenta previa centralis was confirmed, complicated by some obscure abdominal process (appendicitis?) Low cesarean section was advised The operation was performed under spinal anesthesia On opening the abdomen a brown fluid containing greenish particles, somewhat loosely attached to the intestine, was found, showing the presence of generalized peritonitis While the abdominal fluid was being aspirated in an attempt to locate the appendix, the umbilical cord was encountered The baby was found inside the abdominal cavity, and immediately after it was extracted it began to breathe Part of the membranes covering the infant were removed with the infant, those remaining were removed immediately afterwards The uterus was somewhat enlarged (5 cm to the pubis) and the placenta was adherent to the floor of the posterior cul de sac of Douglas in a cavity, the anterior wall of which was formed by the anterior surface of the sacrum and the investing membranes The placenta was removed in its entirety and the place of its insertion packed with gauze Three drains were left in situ At the conclusion of the operation the patient received a liter of salt solution

The following morning she was extremely ill, with Hippocratic facies and rapid pulse She had not lost much blood A great quantity of serum discharged completely saturating t
gauze packing

Two blood transfusions one in the
and another in the evening, were g
more salt solution injected From
steady improvement was noted T

Specialization Courses. Gynecology and abdominal surgery, Faculty of Graduate Studies, later philosophy and letters in the Graduate School, University of Mexico, for three years; graduated in the specialty October 26, 1926. Thesis, "Elements of Gynecomastotherapy." Resident at the Cancer Institute, New York, 1931. Assistant in the hospitals of Paris and London, 1932, and in Paris and Rome, 1935.

Professional Activities. Policlínica del Cinco de Mayo: Chief of the department of surgery and gynecology, from 1923 to the present. Beneficencia Española: Visiting physician, 1939. Dr. López Esnaurrízar Sanitarium: Director, from 1938 to the present. University of Mexico: Adjunct professor in the Faculty of Medicine, 1923-1935; professor of clinical propedeutic surgery in the same school, from 1936 to the present.

Congresses and Commissions. Mexican delegate to the Seventh International Congress of Accidents and Diseases in Industry, Brussels, 1935; First International Congress of Gastroenterology, Brussels, 1935; and to the International Assembly of the International College of Surgeons, New York, 1939; in 1932 attended the International Congress of Surgery held in Madrid.

Honorary Offices and Commissions: Academy of Surgery: Secretary, 1936-1938. Permanent International Committee for the Study of Accidents in Industry: Secretary of the Mexican National Committee of the Seventh Congress, Brussels, 1935. International Society of Gastroenterology: Secretary of the Mexican National Committee of the Second Congress, Paris, 1937, and vice president of the same committee for the Third Congress, London, 1940. International College of Surgeons: National Regent for Mexico, New York, 1939; treasurer Mexican chapter, 1939.

National Societies. Mexican Medical Association, Academy of Surgery.

Foreign Societies: International Society of Gastroenterology, International Society of Surgery, International College of Surgeons.

Honorary Distinctions. Prize of the Federal Department of Labor of Mexico, monograph contest, 1934. Director of the Section of Gynecology of the *Revista Mexicana Medicina.*

Writings. Textbook, "Tratado de Clínica Propedéutica Quirúrgica," Uteha, Mexico, 1939; "Elementos de Ginecomasoterapia" (unpublished); various scientific works in the Mexican and foreign journals, and reports of national and international congresses.

DR. FRANCISCO FONSECA GARCIA, F.I.C.S.

SECRETARY OF MEXICAN CHAPTER

Born in Mexico City. Graduated in medicine from the Faculty of Medicine of the University of Mexico (1925).

Specialization Courses: Gynecology and abdominal surgery (postgraduate courses of the General Hospital, 1928).

Professional Activities: Public Assistance: Chief of the Surgical Service of the General Hospital. Francesa Charity: Chief Surgeon of the Service of the Sanatorium of the Francesa Red Cross. Professor of clinical surgery in the Faculty of Medicine, University of Mexico.

Honorary Offices and Commissions: Academy of Surgery: Voting member of the Board of Directors, 1936-1938. *International* College *of* Surgeons, Mexican Chapter: Secretary of the National Executive Council, Mexico, 1939.

National Societies: Mexican Medical Association, Society of Physicians of the General Hospital: Medical Society of the General Hospital, active; National Athenaeum of Sciences and Arts, active; Academy of Surgery.

Foreign Societies: International College of Surgeons, fellow.

Honorary Distinctions: Officer of the *Academia de la Republica Francesa.*

Writings. Scientific works in various reviews and periodicals, national and foreign.

sesses extra utérines observées par l'auteur six étaient des lithopédions, quatre furent des trouvailles d'autopsie. Dans les sept autres cas le diagnostic correct ne fut posé avant l'opération que dans deux cas, quatre de ces sept mères moururent, trois enfants vécurent.

ZUSAMMENFASSUNG

Extrauteringraviditat mit ausgetragenem lebendem Kinde

Im vorliegenden Falle war bei einer 30 jahrigen Mehrgebarenden die Diagnose Placenta praevia kompliziert durch eine Bauchpathologie am Ende der Schwangerschaft gestellt worden. Der Kaiserschnitt ergab ein lebendes Kind in der Bauchhohle mit der Plazenta im hintern kleinen Becken. Das Kind wog sechs Pfund, und war am Leben. Es was zyanotisch und hatte eine plastische Deformitat am Kopfe. Es starb nach 17 Stunden. Die Mutter erholte sich glatt. In 17 Fallen von Bauchhohlenschwangerschaft des Verfassers 6 waren Lithopadion und 4 wurden bei der Autopsie festgestellt. In den ubrigen 7 Fallen war die korrekte Diagnose nur in 2 vor der Operation gestellt worden. 4 Mutter starben und 3 Kinder lebten.

SUMARIO

Embarazo extrauterino con un niño vivo hasta termino completo

En el caso presentado aqui, un diagnostico de placenta previa, complicado con patologia abdominal, fue hecho en una multipara de 30 años de edad cuando estaba a termino. La cesaria revelo un feto vivo en la cavidad abdominal con la placenta en el fondo de saco de Douglas. El niño peso seis libras y estaba viviendo, pero estaba cianotico y tenia malformaciones de la cabeza. Este murio 17 horas despues. La madre hizo un recobramiento excelente. De los 17 casos de embarazo extrauterino observados por el autor, 6 eran litopedios y 4 fueron observados en la autopsia. En los 7 casos restantes, en solamente dos el diagnostico fue correcto antes de la operación, 4 madres murieron y tres niños vivieron.

RIASSUNTO

Gravidanza fuori l'utero con un bimbo vivente ad intero termine

Nel caso presentato qui dentro, una diagnosi di placenta previa, complicata per patologia addominale, fu fatta in una multipara, di trent anni, a termine. La sezione Cesarea rivelo un feto vivente nella cavita addominale con la placenta nel fondo di sacco posteriore. Il bambino pesava sei libbre ed era vivente ma era cianotico e aveva malformazioni plastiche della testa. Mori dopo diciassette ore. La madre fece una guarigione eccellente. Di 17 casi di gravidanza fuori l'utero, osservati da l'autore, 6 furono litopediones e quattro furono osservati a l'autopsia. Nei 7 casi restanti, in soltanto 2 casi la diagnosi corretta fu fatta prima l'operazione, quattro madri morirono e tre bambini vissero.

* * *

REQUESTS FOR INFORMATION AND APPLICATIONS FOR ASSOCIATE MEMBERSHIP, MEMBERSHIP OR FELLOWSHIP IN THE INTERNATIONAL COLLEGE OF SURGEONS SHOULD BE ADDRESSED TO MR RALPH E OSBORNE, BUSINESS SECRETARY, 2543 PARKWOOD AVE TOLEDO, OHIO

(*Continued from page 280*)

selected the newest and most standardized surgical methods of plastic repair. Included in this single volume are translations and excerpts from the works of English writers. Special surgery of the neck, trunk and extremities are omitted. The most elementary details are described, such as the incision, proper excision of tissue, rearrangement for suturing, types of sutures and suture material, wound dressings, tissue transplants and grafts. More than 400 pages are devoted to the pre- and postoperative care of the patient, fluid, acid and salt balance, anesthesia and shock. The greatest emphasis is placed on the surgery of the nose. The 22 chapters deal with operations in general, tissue transplantation, wounds, burns, the cranium, the eyelid, the auricle, the maxillofacial region, the lip, cleft-lip and cleft-palate, the mandible, the salivary glands, surgical affections of the skin and plaster encasements and prostheses. The impression of too much redundancy is perhaps gained. The voluminous bibliographies should prove of special interest to the research worker.

A.

Cardiovascular-Renal Disease. By Laurence W. Smith, M.D., Edward Weiss, M.D., Walter I. Lillie, M.D., Frank W. Konzelmann, M.D., and Edwin S. Gault, M.D. Pp. 227. New York: D. Appleton-Century Co., 1940.

THIS work is a fine correlation of the clinical, pathologic, ophthalmologic and laboratory findings in cardiovascular-renal disease. It is based on material awarded the Frank Billings gold medal at the scientific exhibit of the annual meeting of the American Medical Association, San Francisco, June, 1938. The importance of fundus studies in this disease is stressed. Two plates in color, black and white illustrations, charts and tables in outline form present the important findings. The bibliography is adequate.

HERBERT A. SACKS

The Principles and Practice of Ophthalmic Surgery. By Edmund B. Spaeth, M.D., Associate Professor of Ophthalmology in the Graduate School of Medicine, University of Pennsylvania, Philadelphia. Cloth. Price, $10. Pp. 835, with 1,035 illustrations. Philadelphia: Lea & Febiger, 1939.

THIS textbook of over 800 pages is a most welcome addition to the already existing literature on ophthalmic surgery. The author not only describes the methods he himself prefers as a surgeon but also the procedures of many other surgeons which serve the same purpose. Advantages and drawbacks of each method are carefully explained. Moreover, many valuable technics of examination (e.g., Walker's method of localization of retinal tears in retinal detachment, gonioscopy, Barkan's method) and operations are quoted verbatim from the original publication. This is of utmost value because it saves the reader from searching the literature.

The material presented is so extensive that details cannot be discussed here. Most of the illustrations are elucidating, especially those describing individual maneuvers during certain intraocular operations. The size of some of the photographs is rather small and the photographic detail might stand a little improvement here and there.

Max Herzog

Synopsis of Regional Anatomy. By T. B. Johnston, M.D., Professor of Anatomy, University of London, Guy's Hospital Medical School. Fourth edition. Price, $4.50. Pp. 462, with 17 illustrations. Philadelphia: Lea & Febiger, 1939.

THIS is one of the most excellent books on the subject. It is by far more than a "synopsis." It discusses many details that are not found even in some of our standard anatomies. This reviewer feels that so valuable a book that has so much "meat" warrants explanatory diagrams or a few drawings. On page 3 the terms "clavipectoral fascia" and "costocoracoid membrane" are used synonomously. Did the author mean to give this impression? On page 14 the supraspinatus muscle is discussed. We believe that this all important structure could have been stressed with an additional practical example of function. On page 53 the boundaries of the femoral ring are given, the posterior boundary being considered the pubic bone when in reality this bone is covered by the pectineus muscle in this area. Might not the mention of this muscle let the surgeon know that soft tissue will be met before reaching the pubic bone? Throughout the book italicized words and phrases are used to emphasize important points. This reviewer believes this is an excellent idea. On page 179 the statement is made that internal hemorrhoids are a result of varicosities of the superior, middle and inferior rectal veins. We wonder if the author meant to imply that all three sets of these veins aid in the formation of internal hemorrhoids. A very cleverly outlined glossary is found in the front of the book giving both B.N.A. and revised

(*Please turn to page 286*)

of Military Documentation in Liege 1932 and 1934 member of the Permanent Commission for the Military Medical Congresses 1933 and 1935 Besides this, he has as president of the Mexican Delegation, met with various congresses on disarmament, protection of artistic and scientific institutions and historic monuments, on municipal governments and cities the milk industry international agreement and the signing of friendship treaties, etc assuming on various occasions the character of plenipotentiary He was representative of the Mexican Government to the League of Nations 1933 1935

He has held various honorary commissions in the League of Nations He was president of the 73rd, 74th and 75th periods of the Court, vice president of the 14th Assembly, 1933, president and vice president of various commissions, subcommissions and conferences, 1933 to 1935, and president of the extraordinary assembly on the question of Chaco, 1934

He was a member of the Board of Health of Pekin (1923), honorary professor of the School of Medicine of Varsovia (1933), private counsellor of the Sovereign of Monaco regarding a Congress on the Humanization of War (1934), president and vice president of various international meetings and conferences in various countries, and patron of the Smithsonian Institute, Washington

His diplomatic service includes appointments as envoy extraordinary and plenipotentiary to China (1922-1924), Belgium (1927-1930), Holland (1930-1932) Sweden (appointed in 1932), France (1933-1935) and Austria (1934-1935), ambassador extraordinary and plenipotentiary to the League of Nations (1934) and at present, since February 1935, to the United States of America

Medical Societies In Mexico he is a member of the Mexican Medical Association, National Athenaeum of Sciences and Arts (honorary) Mexican Society of Geography and Statistics (active) Academy of Surgery, Academy of Medicine Academy of Sciences

He is a member of the following foreign societies International Society of Surgery, Belgian Society of Urology, American College of Surgeons (fellow) Association of Military Surgeons of the United States (honorary), International College of Surgeons (honorary), Academy of Medicine of Lima Academy of Sciences and Arts of Cadiz, and others

Decorations He has been decorated with the First Class Medal of Military Merit of Mexico, Grand Crosses of National Orders of Belgium, Bolivia Colombia, Cuba, Chile, China, Ecuador, Haiti, Holland, Panama, Peru, Portugal, Santo Domingo, Grand Official insignia of the Legion [illegible] of the Spanish Republic, [illegible] Medal of Belgium (the only foreigner [illegible] by special royal decree), and [illegible] of national and foreign organizations

Publications He has had published scientific [illegible] and other works in various Mexican and foreign periodicals in addition to reports of national and international congresses, and books and pamphlets theses and conferences, as well as literary and historical articles, verses and poems too numerous to list here

GONZALO CASTAÑEDA, M.D., F.I C S

PRESIDENT AND NATIONAL REGENT OF THE MEXICAN CHAPTER

Dr. Gonzalo Castañeda was graduated in 1898 from the Medical Faculty of Mexico Following this he did postgraduate work in Europe

At present he is physician to the Monte and Pachuca Royal Mining Company, professor and director of the Science Institute of the State of Hidalgo, and deputy to the congress of the same state

COLONEL FIELDING H. GARRISON (1870-1935)

ON THE OCCASION OF THE FIFTH ANNIVERSARY OF HIS DEATH

SOLOMON R. KAGAN, M.D.
BOSTON

DR. Fielding H. Garrison, a pupil of the great Dr. John S. Billings, was an outstanding figure in medical history and bibliography.

He was born in Washington, D. C., on November 5, 1870. His ancestors were French Huguenots. His great, great grandfather, John Garrison, was born in Virginia in 1740. The musket which he used during the Revolutionary War was preserved for years. Colonel Garrison's great grandfather, Samuel Hudson, was born in Maryland in 1760. He was a scholar, a *bon vivant* and a lover of adventure. Garrison's father, John Rowzee Garrison II (1835-1905), was a most just man who for a number of years filled the position of Deputy First Comptroller in Washington, D. C., and later that of Auditor to Porto Rico. From his father Fielding inherited certain Scotch traits and from his mother a French temperament. He was most fortunate in having parents who, recognizing his ability, did their utmost to aid in its development. A deep affection existed between Fielding and his mother and he found unending delight in her vivacity and wit. His father, however, of whom he was very proud, had the greater influence on his life, especially during his boyhood. Fielding told his cousin, Mrs. E. J. Price, that the example set by his father had been a constant incentive to him. The traits that made for Fielding's greatness, his intellect, industry and tenacity of purpose, were inherited from his father. His talent for writing was a heritage from his Garrison ancestors. His father had it to a marked degree, although his busy life in other pursuits prevented its development.

Garrison as a boy was slender, sandy-haired and blue-eyed and enjoyed excellent health. He was a lover of the forests, through which he tramped in endless search for chestnuts and chinquapins, and of all animals, both domestic and woodland. Despite his outward reticence and shyness and his precocious cleverness, he was possessed of a gamin-like sense of humor and was at times mischievous, as shown by an incident related by his cousin, Mrs. Price, concerning one of his customary summer visits to the Garrison farm in Virginia. Mrs. Price had an enormous, snow white pet cat named Rip, which was the pride of her life. Young Garrison conspired with one of her sisters and conceived the idea that Rip's beauty would be greatly enhanced were his whiteness changed to blue. In a very short time Rip emerged, covered from his head to the tip of his tail with great splotches of blue.

Garrison showed during childhood that he possessed courage, as well as a sense of humor. Another incident of his childhood illustrates his courage and also another quality. He noticed once in Glover Hill a large moccasin snake behind one of his cousins. Seizing a poker, which stood beside the fireplace, he waged battle with the venomous reptile until he killed it. The child, evincing the modesty which characterized him throughout his entire life, fled into hiding when the assembled family proclaimed him a hero.

According to the recollections of his cousins, Mrs. Price and Mrs. M. S. Burdette, Garrison was not over ten years of age when he began to study music. His first instructors were Professor Orstensen and Professor Waldecker, both of Washington, the latter a teacher of some renown. As a youth Garrison was particularly fond of the waltzes of Johann Strauss, but later he became an enthusiastic admirer of Beethoven's compositions, an admiration which remained unshaken until his death. However, he once remarked that the "gloriously harmonious discords" of Wagner stirred him to his very depths.

fessionalists Mexico 1933 Commissioned especially by the Academy of Sciences before various academies and scientific societies in Europe 1935 1936 Delegate of the Government of the State of Campeche Second National Assembly of Surgeons, Mexico 1936 and third National Assembly of Surgeons Mexico 1939 Delegate of the National Athenaeum of Sciences and Arts First National Congress of Hygiene and Medicine of Industry Mexico 1937 Representative and Delegate of the International College of Surgeons, Mexican Chapter International Assembly of Surgeons New York 1939

Commissions in Foreign Countries Representative and delegate to the Fourth International Congress of Hospitals Rome 1935 Eleventh International Child Conference Brussels 1935 Seventh International Conference of Accidents and Diseases of Industry Brussels 1935 First International Congress of Gastroenterology Brussels 1935 Eighth International Congress of Accidents and Diseases of Industry Frankfort on the Main 1938 Commissioned to study public assistance in Europe 1935 1936

Honorary Offices and Commissions Secretary of the Academy of Surgery 1933 1936 International Society of Gastroenterology voting member of the Mexican National Committee of the First Congress Brussels 1935 vice president of Mexican National Committee of the Second Congress Paris 1937 and of the Third Congress London 1940 Permanent International Committee for the Study of Accidents of Industry vice president of the Mexican National Committee of the Seventh Congress Brussels 1935 Mexican member of the Permanent International Committee Frankfort on the Main 1938 International Society of Surgery Mexican delegate to the International Committee (original organization of the Mexican National Committee) Cairo 1935 International College of Surgeons National Regent for Mexico Geneva 1936 General Secretary for Mexico of the Executive Council of the College Philadelphia 1938 co editor of the JOURNAL Chicago 1938

National Societies Mexican Medical Association Society of Physicians of the General Hospital Yucatan Medical Society National Athenaeum of Sciences and Arts (active) Mexican Society of Geography and Statistics (active) Academy of Surgery Academy of Sciences

Foreign Societies International Society of Gastroenterology founder International Society of Surgeons titular International College of Surgeons honorary

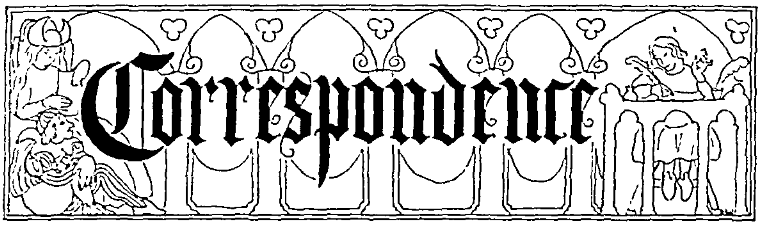
Honorary Distinctions First prize for honoring the memory of Manuel Acuna Seventh National Medical Congress (*Revista Medicina*) Saltillo 1922 Diploma of Honor, Tenth National Medical Congress Mexico [illegible] Invitation from the President [illegible] Venezuela Panamerican Medical [illegible] Caracas 1933 Gratitude from [illegible] from the people of Cuba [illegible] Finlay 1933 First prize [illegible] Garci Crespo First National [illegible] Garci Crespo 1934 [illegible] Permanent International Committee for the Study of Accidents of Industry Frankfort on the Main 1938 Honorary member International College of Surgeons Geneva 1939

[illegible] Various scientific works books pamphlets national and international congresses special and encyclopedic reviews national and foreign articles chronicles and discourses on scientific historical literary and artistic themes

DR MIGUEL LÓPEZ ESNAURRÍZAR, FICS

TREASURER AND NATIONAL REGENT OF MEXICAN CHAPTER

Born in Mexico City March 23 1900 Graduated in medicine from the Faculty of Medicine of the University of Mexico Thesis Technic of Intestinal Sutures commented on in the foreign press by Prof Jean Louis Faure in *La Presse Medicale* Paris



Correspondence

FOREIGN LETTERS

ENGLAND

The Editor
J. International College of Surgeons
Chicago, U.S.A.

Dear Sir:

Can any of your readers cite cases, from their own personal knowledge, in which fright during pregnancy has been associated with malformation in the child born subsequently? If so, what were the approximate date of conception and the actual date of birth?

(Signed) Edward Lawrence, F.R.A.I.

(Note: Answers to this letter will be forwarded at once to the inquirer.)

BELGIUM

(From Our Regular Correspondent)

May 10, 1940

Treatment of Pseudoarthrosis

Dr. Verbrugge presented before the Société Belge de Chirurgie a paper on the treatment of fractures in which, after the normal period for consolidation or several months have elapsed, no trace of callus at the site of the fracture is found upon operative examination, or in which there is clinically a total absence of consolidation, despite the seeming presence of consolidation as shown by roentgenologic examination, or a genuine "pseudoarthrosis," or, finally, a considerable loss of osseous substance.

The author is of the opinion that:

1. All cases of pseudarthrosis are curable; their treatment requires patience, good technic and perseverance.
2. The principles of treatment are the same as osteosynthesis for fresh fractures, likewise for grafts.
3. Cases of pseudarthrosis are always, so to speak, a result of faulty orthopedic or surgical treatment. They are not due to a mysterious factor, but rather to the fact that the osseous extremities are not mathematically in juxtaposition.
4. The osseous graft is doubtlessly a valuable aid in many cases of pseudarthrosis in which the bones are demineralized, but metallic osteosynthesis is the method of choice.

A very interesting discussion points out the importance of immobilization which alone can assure recovery, whether an autograft or os purum is used in the operative intervention.

Treatment of Essential Coxa Vara of Adolscents

Dr. Van Nes presented to the Société Belge d'Orthopédie an interesting communication on coxa vara of adolescents.

Under this name, or under the term of epiphyseolysis of the hip, is included an affection which manifests itself between the ages of 12 and 16 years, occurs in both girls and boys and is characterized by a displacement of the superior femoral epiphysis downward and backward in relation to the neck of the femur.

The author stated that the results of treatment of epiphyseolysis of the hip are better in proportion to the earliness with which treatment is begun; the attention of the medical practitioner should therefore be drawn to this affection. Forced redressement, formerly applied and still recommended at times by certain authors, is to be rejected in cases of progressive epiphyseolysis because of the damage produced at the articulation of the hip. Forced redressement is indicated only in cases of acute epiphyseolysis which are equivalent to fracture of the neck of the femur. In the former cases, redressement must not be followed by immobilization in a plaster cast, but by osteosynthesis with a Smith-Petersen nail. In early cases of epiphyseolysis, treatment with the Smith-Petersen nail prevents a new displacement of the epiphysis and permits patients to resume their occupations after a short time. In advanced cases good results are obtained by palliative operations (sub- or pertrochanteric osteotomies).

DR. DARIO FERNANDEZ FIERRO, F.A.C.S, F I C S, F I C A

Born in Puebla City December 17, 1883 Graduated in medicine from the Faculty of Medicine of the University of Mexico 1910

Specialization Courses Gynecology and abdominal surgery (Pozzi Jayle and Faure), surgical therapeutics (Hartmann and Ockenzy) otorhinolaryngology (Castex), surgery of the nervous system (Sicard and Babinski) in the Faculty of Medicine of the University of Paris 1910-1911, surgery of the neck, in the Kocher clinic, Berne, 1911-1912

Professional Activities Military Health Department Civil surgeon of the Military Hospital of Mexico, 1913-1915 Public Assistance Surgeon of the General Hospital, from 1914 to the present University of Mexico, Faculty of Medicine prosector of descriptive anatomy 1913 1916, professor of descriptive anatomy, 1917-1925, professor of therapeutic surgery 1926 to the present

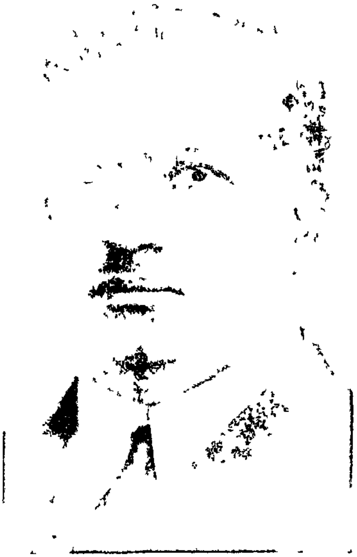
Congresses and Commissions Representative and delegate from the Public Assistance (General Hospital) to the Second National Assembly of Surgeons (official chairman), Mexico, 1936 Delegate of the Mexican Government to the Seventh Panamerican Medical Congress, Havana, 1938

Honorary Offices Specialty Regent in General Surgery Mexican Chapter of the International College of Surgeons, National Executive Council, Mexico, 1939

National Societies Mexican Medical Association, Society of Physicians of the General Hospital, Medical Society of the General Hospital, active, Academy of Surgery, Academy of Medicine

Foreign Societies International Society of Surgery, International College of Anesthetists, fellow, American College of Surgeons, fellow, International College of Surgeons, fellow

Writings [illegible] scientific works including original techniques published in various Mexican and foreign reviews besides reports of national and international congresses articles and discourses in different foreign and Mexican periodicals



THE NEXT INTERNATIONAL ASSEMBLY OF THE INTERNATIONAL COLLEGE OF SURGEONS WILL BE HELD IN MEX [illegible] CITY

MEXICO, AUGUST 10-14, 1[illegible]

(Continued from Page 280)

B.N.A. (English translation) terminology. This does much to aid the confused student. The book should be of distinct value, not only to the student, but to the surgeon and general practitioner.

P.

The New International Clinics. Edited by George Morris Piersol, M.D., Professor of Medicine, Graduate School of Medicine, University of Pennsylvania, Philadelphia. Volumes II, III and IV, New Series Two. Price $3 per volume for current year; $5 for back years. Philadelphia: J. B. Lippincott Company, 1939.

EACH of these volumes consists of original articles by well known leaders in the respective fields and is thus a compendium of clinics and evaluated reviews of current advances in the medical arts, with case histories, diagnostic workups and treatment. Worthy of note are the articles on the use of suprarenal concentrate by mouth in the treatment of bronchial asthma, urticaria, herpes zoster and dermatitis venenata; vaccinotherapy in chronic and focal infections; the neurologic and psychiatric aspects of vitamins; the treatment of diabetes during the course of infections and surgical complications; the treatment of neutropenia by splenectomy; the ease of obtaining placental blood for transfusions; allergic reactions to liver extract injections and their relief with adrenalin injections; intractable pulmonary hemorrhage; massive hemorrhage from peptic ulcer; and angina pectoris. The volumes have the advantage of being based on the authors' experience as well as on the current literature.

R.

A Mirror for Surgeons. By Sir D'Arcy Power, K.B.E., F.R.C.S. Consulting Surgeon to St. Bartholomew's Hospital, London. Price, $2. Pp. 230. Boston: Little, Brown & Company, 1939.

FOR more than half a century Sir D'Arcy Power has maintained the high standard of teaching and practice of surgery in the oldest British hospital. Early in life he realized the value of a thorough knowledge of the history of surgery as attested by the editing in 1886 of "Memorials of the Craft of Surgery in England" from materials compiled and left by John F. South. As dean of the British surgical profession he has contributed many biographies of surgeons to the "Dictionary of National Biography."

For the present volume Sir D'Arcy made excerpts from the writings of twenty-two surgeons, from John Arderne (1307-1380) to Sir William Macewen (1848-1924), during which time surgery advanced from an art to an exact science.

John Arderne's treatment for stone impaction in the urethra was as follows: "A stone impacted in the urethra causeth the patient to suffer right great pain and intolerable sorrow. It may be pushed back into the bladder by an instrument of silver or latten such as may be made in very good town by craftsman that maketh pins for women's heads or at the goldsmith's. Many a one have I so holpen. I have seen young men and old in the which the stones have been so great that they could neither come out by the eye of the yard nor be pushed back but always abideth in the middle of the yard. And I cured them easily and quickly in this manner. First, I took the patient and laid him grovelling and then I bound the yard on both sides of the stone with linen bands, so that the stone might nowhere flee away, and with a little incision upon the stone with a lancet or with a razor I had out the stone and after that I sewed the outer skin over the hole with a needle and thread and then I laid on a dressing of white of egg mixed with finely ground wheaten flour and left it for three days, and within fifteen days I had him perfectly cored."

In Chapter LI is found the important contribution of Thomas Gale (1507-1587) in developing three types of slender needles. Gale is best known for his "Textbook on Surgery" (1563-1566).

Space does not permit a discussion of the contributions of the following: Ambrose Paré (1510-1590); John Halle (1529-1568), "a hater of quacks"; William Clowes (1544-1603); Peter Lowe (1550-1610), the founder of Glasgow University; John Woodall (1570-1643) who, as surgeon general of the East India Company, was the link by which the great tradition of Elizabethan surgery was transmitted to the surgeons of the Commonwealth and the Restoration; and Richard Wiseman (1622-1676), who "occupied a definite position in English surgery. He wrote for cultivated Surgeons and was among the first to illustrate his remarks with accounts of cases which had been under his care."

Others worthy of mention are William Cheselden (1688-1752), a versatile surgeon, who first adopted suprapubic lithotomy; Percival Pott (1714-1789), a master teacher of surgery; John Hunter (1728-1793), the experimental surgeon; Abraham Calles (1773-1843); Sir Charles Bell (1774-1842), surgeon and artist; John Collins Warren (1778-1856); Sir Benjamin Collins Brodie (1783-1862), who was a great gentleman at a time when few surgeons were gentlemen; Sir James Paget (1819-1899), who first taught the profession that pathology is the science of surgery; Joseph, Lord Lister (1827-1912); Sir Jona-

NEBRASKA GUILD ORGANIZED

Dr Edwin C Henry, of Omaha was elected president of the Nebraska Study Guild of the International College of Surgeons at the organization meeting held May 13 in the University club at Lincoln, Neb **Dr R C Olney,** of Lincoln was elected secretary

Plans were made for the first scientific meeting scheduled for the last week in May in Omaha with clinics at the Douglas County hospital in the forenoon and luncheon at the Omaha Athletic club followed by round table discussion At Creighton University Medical school lectures are contemplated on Later Concepts of Anatomy and Physiology by representatives of the faculties of the University of Nebraska and Creighton University Schools of Medicine Dr Henry who is a member of the surgical faculty of Creighton University was appointed chairman of the program committee

—o—

NEW MEXICO GUILD

The New Mexico Study Guild held its second meeting May 27 at the St Joseph s hospital Albuquerque N M **Dr W R Lovelace** conducted a surgical clinic in the morning This was followed by a round table conference on the points presented at the clinic The Guild meeting was held just preceding the meeting of the New Mexico State Medical Association

—o—

NEW ENGLAND STATES GUILD

Lively discussion characterized the four hour scientific meeting of the New England States Guild of the International College of Surgeons, held March 27 at the Hospital of St Raphael New Haven Conn A 'wet' clinic was held in the morning followed by luncheon at the Union club At the afternoon meeting, Dr Joseph Linde, president of the Connecticut State Medical Society and health officer of New Haven, gave the address of welcome Papers were presented by **Drs James Gettings, Dennis O'Connor, A J Mendillo, William German** and **Robert Nesbit,** of New Haven, **Dr Edward Kirschbaum,** of Waterbury, Conn , and **Dr Andrew McQueeny,** of Bridgeport Conn can be warmly recommended to the progressive man in medicine.

A. T.

The Art of Anesthesia. By Paluel J. Flagg, M.D. Sixth edition. Price, $6. Pp. 491, with 161 illustrations. Philadelphia: J. B. Lippincott Company, 1939.

AS the title indicates, this volume deals with the art of anesthesia, principally inhalation anesthesia. Nitrous oxide, ethylene and ether are well covered. In the chapter, "Selection of Anesthetic," nitrous oxide and oxygen, or ethylene and oxygen, or nitrous oxide, oxygen and ether, or ether alone are the only anesthetics considered. The importance of resuscitation and prevention of asphyxial death are strongly emphasized as is also the intratracheal technic. The author presents his own technics well and for those who use those technics, the book will be appreciated.

CHAS. J. BETLACH

The Medical Career. By Harvey Cushing, M.D. Price, $2.50. Pp. 303. Boston: Little, Brown & Company, 1940.

THIS collection of essays and biographical appreciation was selected and edited for publication prior to the author's death on October 7, 1939. To appreciate the work to its fullest extent it is necessary to consider Professor Cushing's early education. He was trained in general surgery by Dr. Halsted from 1896 to 1912, during which time he was in constant touch with Welch, Howell and Hurd. He studied under Theodore Kocher and Hugo Kronecker (Bern) and Charles S. Sherrington (Liverpool) in 1900 and 1901.

His first scientific papers were rewarded by his election to membership in the American Association of Pathology and Bacteriology, 1900; American Neurological Association, 1903; American Physiological Society, 1905; charter membership in the American Society of Clinical Surgery, 1903; and fellowship in the American Surgical Association, 1906.

Although he created a school of neurological surgery, his study of each case was that of a general surgeon.

In the "Medical Career" address given at Dartmouth College on November 20, 1928, he said in part: "The ideals and standards of the profession having been the same these past two thousand years or more, the difficulties of living up to them are, it may be assumed, no greater now than they ever have been. Medicine, in short, becomes constantly more exact and scientific in its procedures. It is prompt to adopt for its own use new knowledge of most varied kinds that comes from the chemist, the physicist, and the biologist, whose primary motive is the extension of knowledge, and who have little if any interest in the application of their discoveries by the medical profession. Röntgen could hardly have dreamed that his discovery would revolutionize our methods of diagnosis, the Curies that radium would be an effective agent in combating certain kinds of malignant tumors, or Faraday that his alternating current would some day be utilized in place of the scalpel to make dissection a relatively bloodless procedure. Anatomy today has become a science which delves into the finest microscopic structures of the tissues and their development from the ovum through the embryo. So, too, the scientific study of function as something apart from structure engages the attention of physiologists in many diverging lines of work that call for chemical and mathematical and biophysical knowledge. Biochemistry of the living tissue and secretions of the body in health and disease engage other groups of medical scientists."

It is a legend that the most critical audiences a scientist can address are the American Philosophical Society, the History of Science Society and the American Interprofessional Institute.

"The Humanizing of Science" was presented as the presidential address before the History of Science Society, Washington, December 28, 1934, an excerpt from which follows:

"The chief difference between modern science and the natural philosophy of the ancients is said to lie in our greater inclination to put things to the test of experiment and, while medicine is constantly broadening its scientific background, in a certain sense every drug a doctor administers and every operation a surgeon performs is experimental in that the result can never be mathematically calculated, the doctor's judgment and the patient's response to these prescriptions being variables indeterminable by any law of averages.

"The humanizing of Science may mean one of two things: (1) a revival of interest in the early classics that deal with natural philosophy, and (2) such an enlargement of the scientific outlook as to include in its scope matters which have to do with human welfare as something apart from culture and which are in the long run perhaps more important."

"The Binding Influence of a Library on a Subdividing Profession. Address at the Dedication of the Welch Medical Library of the Johns Hopkins University" was given October 17, 1929, from which we read:

Although when young he enjoyed the theatre, Joseph Jefferson being one of his favorite actors, in later years he obtained greater pleasure from concerts and operas

Garrison entered the Johns Hopkins University in 1889 and received his degree of bachelor of arts in 1890 Three years later he received the degree of doctor of medicine from Georgetown University School of Medicine In 1891 he began his service at the Library of the Surgeon General s Office under Dr J S Billings where he became assistant and later principal assistant librarian Garrison participated in the monumental work of the Index Catalogue and Index Medicus issued by the Army Medical Library From 1913 to 1926 he became editor of the Index Medicus From 1927 to 1929 he was associate editor of the Quarterly Cumulative Index Medicus edited by the American Medical Association

In 1913 he published his monumental book History of Medicine which passed through four editions His classical biography John Shaw Billings was published in 1915 From 1906 to 1935 he published books monographs and original articles dealing mainly with medical history and biography He was mathematician and physicist and wrote several scientific articles on these subjects He was a frequent contributor not only to medical journals but to other periodicals such as *American Mercury Science Times* and *Monthly Science*

Garrison was a teacher of teachers an inspirer a leader in his field and the guide of many authors young and old He served as a storehouse for references for authors teachers lecturers and editors His advice was sought by such men as Osler Welch and Cushing He corrected and made important improvements in numerous books on the history of medicine published by well known authors Many lecturers and authors acknowledged their indebtedness to him Significant is the statement of Sir Humphry Rolleston who wrote An extremely sensitive soul he (Garrison) lived and laboured in a backwater while honours and promotions drifted by in other directions

Garrison was a nervous sensitive individual as a result of certain unfavorable circumstances Library work and the compiling of bibliographies carried on for a number of years exhausted him and interfered to a great extent with his literary and historical work In a letter to Dr Charles Singer he wrote that he had worked under difficulties and that if he had lived in another environment and had had adequate leisure he could have done more and better work

Dr Garrison was appointed a Lieutenant in the Medical Reserve Corps In 1917 he was commissioned Major and in 1918 Lieutenant Colonel From 1920 to 1930 he served in the Medical Corps of the regular army While in service in the Phillipine Islands he was greatly affected physically and mentally, by the climate and suffered there a breakdown which made him nervous and eccentric

After retiring from the Army with the rank of Colonel he moved to Baltimore where he became librarian of the Welch Medical Library at the Johns Hopkins University He declined Welch s proposal to become professor of medical history at the Institute of Medical History but he agreed to become resident lecturer Both positions he held until his death

In 1917 the president of Georgetown University bestowed upon Garrison the degree of master of letters stating He who superadds to the exposition of the utility and achievements of the graces of literature richly merits to be signally recognized by his alma mater and to be decorated with the highest honors in her gift

In 1932 Yale University conferred upon him the honorary degree of doctor of letters

On April 26 1910 Garrison married Miss Clara Augusta Brown of New York The Garrisons had three doughters Mrs Shirley Heare Miss Margaret and Miss Patricia Mrs Garrison died in 1939

Dr Garrison died April 18 1935 at the age of 64 at the Johns Hopkins Hospital He was buried in Arlington National Cemetery where his collaborators Dr J S Billings and R Fletcher previously had been buried

Garrison was a many sided man contradictory traits made it difficult to get a clear picture of his personality The best key to the understanding of his characteristics are his letters for he was a brilliant correspondent His letters deal mainly with problems of science and art general literature philosophy criticism and medicine with special reference to medical history they are replete with references aphorisms quotations from great American and European authors and words and sentences in French German and Latin The letters have a biographical interest for they present a picture of the man—his inclinations aspirations interest in music and literature and his attitude toward life

(Continued in August issue)

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Stellectomy and Angina Pectoris

Docteur Jean Gov[illegible] [illegible] stellectomy in angina pectoris [illegible] Medico-Chirurgical [illegible]

He first reviewed [illegible] the disease, in all of which [illegible] unilateral or bilateral stell[illegible] simultaneous resection of two or [illegible] thoracic ganglions The cases were [illegible] by films orthodiagrams and electrocardiograms [illegible] the patients, taken before and after operation After reviewing the different theories advanced at the present time by physiologists and surgeons cardiologists and internists Dr Govaerts stated that he believed that reliance could be placed on the theory which holds that the benefits of stellectomy, especially when it is accompanied by more or less extensive resection of certain intrathoracic ganglions are due to the fact that by this operation the sensory branch, the afferent branch of the reflex, is cut off, which causes the coronary angiospasm the originator of cardiac ischemia and subsequently of pain at the level of the heart Dr Govaerts was of the opinion that the operation is to be recommended in all cases in which the affection does not yield to the usual medical treatment

Influence of Spinal Anesthesia on the Circulation of the Blood

Professor Hustin explained before the Societe Belge de Chirurgie the results of his investigations on the effects of spinal anesthesia on the circulation of the blood Some points are of practical value Disturbances occurring within the twenty-minute period following injection of the anesthetic fluid are often accompanied by the same clinical symptoms and the same circulatory disorders which occur constantly, but to a less marked degree, as a result of decreased pressure of the cerebrospinal fluid during spinal anesthesia Thus the disturbance or "storm" would be the consequence of an abnormal extension of the percaine towards the medulla

Before and during the injection of the anesthetic fluid, there may ensue syncope comparable to that described by Lewis under the name of [illegible]vagal It is also very similar to the depressor reflex occasioned by pressure on the carotid sinus

The position of the patient on the operating table sometimes has a marked effect on the circulation of the blood The ventral position, especially if a cushion is interposed between the abdomen and the table causes an acceleration of the pulse and a decided fall in blood pressure These vascular reactions cease immediately upon placing the patient on his back

Prolapse of Sigmoid Colostomies

Subsequent to a communication of Dr Jonkheere, the Societé Belge de Chirurgie discussed in detail the question of anatomy and of treatment of prolapse of the iliac sigmoid following the establishment of an artificial anus There are two types of evagination The first consists in evagination of the lower end, which is occasioned by active antiperistalsis The length of the loop of the intestine is the determining etiologic factor The second type consists of an evagination of the upper segment Whatever the mechanism by which this complication occurs, strangulation of the bowel may eventuate and necessitate an emergency operation This operation consists of first sectioning the external cylinder of the bowel at its base One thus gains entrance to the peritoneal cavity which occupies the space between the external cylinder and the loop occupying its interior The mesosigmoid is located Proper hemostasis must be assured Seizing the internal cylinder of bowel, one draws outward the entire mobilizable portion of the intra-abdominal colon A ligature is placed on the colic end, below the section, which will cause the respective piece of the intestine to become detached Finally, this temporarily obliterated stump is fixed to the abdominal wall by several interrupted sutures But one must constantly bear in mind the possibility of this accident and an endeavor should be made to avoid it This is best done by meticulous attention to technical details in the performance of the primary operation A bridge of skin in the form of an inverted "U," with the serifs of the 'U' extended laterally, used as a support for the exteriorized loop of bowel employed in the operation is an admirable aid in this connection

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than Hutchinson (1828 1913) Sir William Macewen (1848-1924), a pioneer in surgery William Stewart Halsted (1852 1922) Henry Jacob Bigelow (1818 1890) and James Marion Sims (1813-1883)

This is not only a must book for surgeons but a "source" book for all students interested in the history of mankind W J Carson

Illustrations of Regional Anatomy By F B Jamieson, M D In seven sections Second edition Price, $15 for complete set $1 50 to $3 50 for individual sections Pp 305 Sections I to V, inclusive Edinburgh E & S Livingstone, 1937 Sections VI and VII Baltimore Williams & Wilkins Co, 1939

IT is impossible to criticize these perfect drawings of Jamieson It is a pity however, that a text does not accompany them Another man's description may not wholly agree with the drawings as presented For example, Jamieson evidently disagrees with the statement that the pretracheal layer of fascia is an offshoot of the ensheathing layer Plate 49 under "Head and Neck" shows no communication between the two We should like to know his version in words as well as pictures Hence if lectures accompanied these drawings, an anatomic Utopia would be to have them bound together Many of these loose-leaf plates are in several colors Their small size (6-1/2 x 8-1/4 inches) enhances their value for use in the laboratory and lecture room

P

Principles of Human Anatomy, with Synopses and Bibliography. By Charles F DeGaris, M D, A M, Ph D, *Professor of Anatomy*, University of Oklahoma School of Medicine, Oklahoma City, Ernst Lachmann, M D, Assistant Professor of Anatomy, University of Oklahoma School of Medicine, and Ralph E Case, B S, A M, Instructor in Anatomy, University of Oklahoma School of Medicine Price, $2 50 Pp 239 Philadelphia Lea & Febiger, 1939

THE book is devoted to various plans of presenting gross anatomy as a course of instruction Plan I is one in which four students are assigned to a cadaver during one semester's work According to Plan II, two cadavers are assigned to four students during two semesters' work Plan III provides that one cadaver be assigned to four students during two semesters These plans are discussed pro and con

The title, *Principles of Human Anatomy*, is somewhat misleading This reviewer believes that the book is more of a guide to dissection rather than a discussion of anatomic 'principles" Texts which ask questions and fail to answer them in the following sentence work hardships on the reader This reviewer believes that if authors wish to stress a clinical point, they might well make a simple statement On page 37 the hypothetical case of an incarcerated *direct* inguinal hernia is discussed One wonders why such a rare entity is chosen rather than the citation of a classical example, such as that of incarcerated indirect inguinal hernia On page 48 the student is referred to various text figures for the disposition of the layers of the cervical fascia Different texts differ on this point

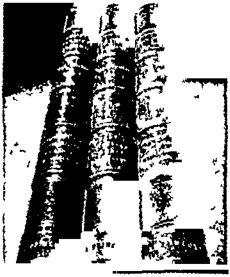
References to various articles in the journals are to be highly commended, especially since these references are further incorporated in the paragraphs of the subjects discussed The general text shows careful planning of dissections and is well done The bibliography is cleverly arranged under the heading of the various systems as well as general references, nomenclature, history, anatomy and x-ray anatomy P

Surgical Applied Anatomy. By Sir Frederick Treves, *Bart* Revised by Lambert Rogers, M Sc, F R C S, F A C S Tenth edition Price, $4 50 Pp 748, with 192 illustrations, 66 in color Philadelphia Lea & Febiger, 1939

THIS is the tenth edition of a work which originally was published in 1883 and was revised from the ninth edition which was prepared by the late Professor C C Choyce Extensive revisions have kept the book abreast of the times Included, for instance, are bronchoscopy and the use of lipiodol in visualizing the tracheobronchial tree

Certain omissions, however, are to be noted On page 210 Figure 59 shows the arrangement of the cervical fascia It is well depicted but it might meet with disagreement in that it shows the prethyroid muscles as having no fascia of their own In the diagram they lie between the ensheathing and pretracheal layers Figure 63, page 227, depicts the thyroid gland as having no fascial pedicle This reviewer believes this structure to be surgically important On page 270 the delto pectoral groove is discussed and only four lines are devoted to it Since this is one of the most important surgical landmarks, and since an attempt should always be made to isolate and preserve the cephalic vein, more stress might well have been placed upon this structure

On page 290, line 11, the phrase 'behind the clavicle" is used This evidently is a [illegible] or, since only divisions of the brachial [illegible] behind the clavicle No doubt 'bel[illegible] tor this minor' was meant The n



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